432 AND ABOVE EME NEWS
JULY 2013 VOL 41 #8

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CONDITIONS: In the summer time EME activity is suppose to slow down, but more is happen now than I can ever remember. Coming right up (28/30 June) is the Rwanda dxpedition (only recently announced) – see below, and the same weekend is also the 9 cm EU/DUBUS EME Contest. I am not very hopeful for the 70 cm CW ATP on 29 June from 2330-0130 and 30 June 0800-1000 with all the other activity this weekend. There was plenty of activity during the 13 cm EME contest, but I did not see any real growth from last year. The top score reported thus far (PA3DZL) is 33 QSOs. I am sure this number will grow as more reports are received from *big gun* stations. Also see F2CT's report. There is a good chance for big dish EME on 3 and 1.25 cm during on 2-4 July. The 3 cm activity weekend is also coming up on 6/7 July. I have suggested we make this a circular pol weekend (if possible), but I have not heard any real response.

9X0EME: Hermann (DL2NUD) and Rene (PE1L) is already QRV from Rwanda! They are operating from a house with a garden in downtown Kigali (KI58ab). Most of the time they will be QRV, the Moon will be high in the sky in Africa. They will be in Rwanda from 26 June until 6 July, but operation is planned on 70 cm for only 28/29 June moonpass, on 23 cm for only the 29/30 June moonpass and on 13 cm for only the 30 June/1 July moonpass. They note that this schedule could change. If they can get 2 stations on air, they will be QRV more. They plan to have Internet access via mobile phone and will try to be on HB9Q for 70 cm up for last minute information. They plan to operate on 432.090 with a 23 el DK7ZB yagi, preamp and some power; on 1296.090 with a 59 el yagi (horizontal), preamp and some power; and on 2320 exact frequency to be decided also with 59 el yagi (horizontal), preamp and some power. My understanding is the 13 cm operation will be limited to the 2320 band.

F2CT: Guy F2CT@wanadoo.fr reports on the 6 cm EU EME Contest from Pleumeur-Bodou Brittanny, France -- On Saturday 18 May and Sunday 19 May, I used the PB8 13 m Cassegrain dish during the 5.7 GHz EME Contest. Unfortunately due to bad weather conditions, it was not possible to change the feed for 10 and 24 GHz operation. We hope to run tests with PB8 on 10 and 24 GHz probably on 2-4 July. Our Sun noise was 25.5 dB and Moon noise was 5.2 dB (measured at 4 GHz). We worked on 18 May OK1KIR (559/559), SQ6OPG (559/579), PA3DZL (559/579), OK1CA (559/599), F1PYR (559/579), G3LTF (559/579), SV1BTR (599/599), G100RSGB (559/579) and SSB (55/56), OH2DG (569/569), PA0BAT (579/569), SP6GWN (529/559), IK2RTI (559/589), SP7JSG (529/579), SM6PGP (529/559), ON5RR (559/559), ES5PC (569/579), W5LUA (569/589), WW2R (559/559), G4CCH (529/579), K2UYH (559/579), VE4MA (559/569) and LX1DB (599/599) and SSB (59/59), and on 19 May JA8ERE (559/579), VK3NX (579/599), JA6CZD (559/579), PA3DZL (569/579), CT1DMK (559/559), IZ2DJP (529/559), IK2UJS (529/559), G3LTF (55/55) SSB, G4CCH (55/55), K5GW (599/599) and SSB (56/56), K2UYH (55/55) SSB and CT1DMK (55/55) SSB. Missed were SG6W, JA4BLC and WA6PY.

13 m Cassegrain dish (PB8) used by F2CT on 6 cm.

Swedish EME Conference – see report near the end of NL

G3LTF: Peter's g3ltf@btinternet.com report for June -- We had a lot of days with strong winds this month, which reduced the opportunities for EME operation. However, I did make some nice contacts on several bands. On 2 June I was on 1296 and had a nice SSB chat with I1NDP and then CW QSOs with SM7FHZ, IK5QLO and F5SE/P. ON 3 June on 432, I worked KD7YZ for initial #450 in KY. I only now need WY for WAS on 432 – all on CW. TNX Bob! I then worked on 1296 K2BLA #374 and YL3GD #375. YL3GD is running 70 W to a 3 m dish, and was an easy CW QSO. I worked on 5760, on 8 June G4CCH, on 9 June JA1WQF for initial #39 and VK3NX, and on 10 June my old friend Yoshi, JA4BLC #40, and our 4th band (plus 9 cm where he has heard me). We have only a very short window, but I am always amazed at how close to the tree line one can work successfully on 6 cm. I know I am getting some excess noise from relatively poor sidelobes, but this HB 6 m dish was originally built with the aim that it would work well at 13 cm, never mind 9 and 6 cm. On 15 June, I was not able to be QRV for the 13 cm DUBUS Contest until nearly 2000 due to high winds. I worked PA3DZL, PA0BAT, OK1KIR, RA3EC, OK2ULQ, HB9Q, W5LUA, F1PYR, CT1DMK SSB, ON5TA and WD5AGO, and on 16 June ES5PC, YO8BCT, OH1LRY, SM6CKU, OH2DG, F5JWF, OZ4MM, OK1CA, SP6OPN, SD3F, PA7JB, PY2BS, LX1DB on SSB, DL1YMK on CW and SSB, SM2CEW, SP7DCS for an initial (#), SV3AAF, K5GW, K2UYH, WA6PY and VE4MA. CWNR were NA4N, IK6EIW and SM3JQU; heard were IZ2DJP, VE6TA and SM3BYA. I was running only about 120 W at the feed for most of the time. My final score was 32 worked and 38 stations copied overall. On 14 June, I ran some TX tests for the University of Surrey (UK) Amateur Radio Club, who is completing a 70 cm EME station. They have 8 x 21 el yagis and did copy my signals. They hope to make some more progress in the autumn. Finally on 17 June, I had two excellent QSOs on 13 cm SSB with LX1DB and W5LUA for the purpose of making a short film of a voice QSO on EME. This was very successful and my thanks go to both for their help and co-operation. Also heard on the band were CT1DMK and PY2BS.

HB9Q: Dan (HB9CRQ) dan@hb9q.ch announces that his group is now QRV on 3400 on a regular basis -- We are using our *new* 10 m solid dish and 10 W at the feed (more info is at http://hb9q.ch/version2/index.php/eme-3400-mhz/eme-with-3400-mhz-our-equipment). So far we have worked G3LTF and SP6OPN; both with very nice signals. We are very keen to work everyone. Please let us know if you are interested in working us. We will inform you by e-mail about our activities (dates and times). On 29/30 June we plan to be QRV for the EU Contest; however, we will not be able to be on for all of our Moon window. So please let us know by e-mail what date and time you plan to be QRV. We will check the HB9Q logger. Due to our license, we are limited for TX from 3400.090 to 3400.110. Please look for us there.

JA4BLC: Yoshiro ja4blc@web-sanin.co.jp was QRV on 15/16 June for the DUBUS 13 cm CW contest and worked 8 stations: W5LUA, ES5PC, SP6OPN,OK1CA, OK1KIR, PA0BAT, OK1KIR(DUP on 2424), DL1YMK for initial #58 and LX1DB. This was lower than 17 QSO'd last year. Heard were SM6CKU, OZ4MM, OH2DG, SP7JSG, YO2BCT, PA3DZL and RA3EC on 2320, and JA8ERE and JA8IAD on 2424. In the EU window, JAs were QRV around 2424.040-060 and listened in the lower portion on 2320 (around 2320.050) to avoid the QRM from stations not equipped for 2424. This arrangement worked very well. The EU cooperation was appreciated. I also worked on Sunday evening 16 June, on 3 cm (10450.1) JA8ERE (M/O) for initial #12. I worked back on 10 June, on 5760 G3LTF (M/O) for initial #20, and

on 13 June, on 10450 JA6CZD (449/559), JA1WQF (449/549) and on 16 June JA8ERE.

JA8ERE: Mikio sgl01011xnifty.ne.jp was active during the EU EME Contest on 13 cm. He QSO'd ES5PC, OK1CA, SP6OPN and OK1KIR. Mikio also worked JA4BLC on 10450 on 16 June despite a tracking problem caused by the bent mast of his dish mount. The mount was damaged by a heavy snow fall last winter. [TNX to JA4BLC for relaying this report.]

JA8IAD: Michinori ana11142@nifty.com was QRV during the 13 cm EU/DUBUS Contest on Saturday and worked OK1CA, SP6OPN, OK1KIR and ES5PC. [TNX to JA4BLC for relaying this report.]

K0RZ: Bill k0rz@comcast.net was very pleased to work KD7YZ on 432 for state 48 on CW. He says that Bob had a good signal. Bill now needs only NV and VT to complete WAS on 70 cm.

K4MSG: Paul Phbjr@aol.com is now QRV on 432 EME with a 432-12EME M2 yagi and a TE System 100 W amp with preamp (tweaked at the factory for 0.6 dB NF) located right at the antenna and looking for QSOs -- Yep, it works! As you said, even a station as small as mine is enough to work the Big Guns. Although activity is quite low compared to 144, I have managed to work I1NDP, UA3PTW and DK3WG [and K2UYH] thus far. DK3WG had a bit of a struggle with me (20DB/28DB). UA3PTW copied me (24DB). I1NDP believes I may be the lowest EIRP station he's ever worked on 432. I like this band and look forward to improving my capabilities. It's pretty darn exciting to have worked 4 countries on 432! I am awaiting a new 70 cm Innov LFA 18 to replace the little M2 12-element. While the Innov has only a bit more gain (probably around 1.5 dB). I want to give it a try and see how it performs, especially since I feel pretty confident from what I've learned about it that the Innov's G/T is noticeably better than the M2. It is still of quite reasonable length (14') and the weight of 2 of them should be fairly easy to incorporate into my "manual elevation" system. The pair should push my gain up to about 18.5 dB. I am also evaluating an "increased power" option. [Paul is the only ham that I have encountered who has professionally worked EME! While in the Navy, he maintained an EME communication system on his ship that operated near 13 cm - see story at the end of this NL.]

KD7YZ: Bob kd7yz@denstarfarm.us continues to add QSOs on 432 EME from his KY QTH -- The ARRL's 8/9 June VHF Contest made my 432 score higher than normal. I worked VK4EME, DK3WG, G3LTF, I1NDP, DL8GP, VK4CDI and JA6AHB. All QSOs were on JT65B except for G3LTF, which was on CW. My EME QSO count was 48% of my total – tropo QSO are not easy from KY. Before the contest weekend I logged G3LTF (CW) and DL8GP absolutely on random, DL7APV and I1NDP. I had several partials with ZS6OB. I consistently copy Pine (O), but he cannot seem to decode me. I am still searching for a dish to use on 1296. I may have located possible source at Morhead University. The Microwave Update Conference will be there in Oct, and I plan to go again this year when it is local.

N2UO: Marc's n2uo@arrl.net report on the EU/DUBUS 23 cm Contest just missed the last NL -- I was active on 23 cm on 11 May in the contest. I worked SV1BTR, HB9Q, OK1KIR, SP7DCS, OH2DG, LA8LF, DJ8FR, PA3DZL, HB9SV, SP6JLW, DL3EBJ, OK1CS, ON5TA, UA3PTW, I5MPK, IZ1BPN, LZ1DX, K2UYH, F5SE/P, OH1LRY, ES5PC, G4CCH, SD3F, 9A5AA, HB9BDC, UA5Y, WA6PY, N4PZ, W4AF, I1NDP, OK2ULQ, OK1CA, CT1DMK, NA4N, VA7MM, JA6AHB, JA4BLC and VK5MC, and on May 12, KL6M, JA8ERE, JA4LJB and VK2JDS. As usual, I was joined by W9EQ during the operation. We think we worked everything we heard, but there are reports of many more stations being active. I think that the NA participation was rather low and some Europeans do not bother to operate during their western window. This was my first operation with my new solid state power amplifier. It is delivering about 450 W, same as the old tube amplifier. It is super-efficient and it can operate key down continuously at full power. In fact, the heatsink fans are not really necessary and I could use the amplifier without them under normal CW operation. Now I can call CQ indefinitely without worrying about overheating the amplifier or the power supply.

N4PZ: Steve n4pz@live.com is temporarily off EME and is limited is running the 20 m 432 and Up EME net. He had a major lightning strike that took out his Internet service, as well as a TS-2000 that he uses on 70 and 23 cm. He also lost his TV, air conditioning controllers, antenna cameras and several other items that he is still assessing. He should have a laptop back on line next week, and will be working towards getting all systems back up as the damaged items are found and replaced.

N6OVP: David n6ovp@pacbell.net is getting very close to having a working 23 cm station -- I have a SAM Jewell preamp (very nice), a PE1RI 300 W SSPA, a 10' dish and a feed from KL6M all tuned and ready to go. Please email me for skeds. I will also be checking the HB9Q reflector.

ON5TA: Eric eric.vanoffelen@skynet.be sends his report on the 13 cm EU Contest –- Family commitments limited my operating time, but I still found very nice activity during the contest. I managed to make 29 QSOs and 1 initial with OK2ULQ. I also had a visit from Murphy causing my tracking system to become erratic and had to rely on moon noise most of the time to keep pointed correctly. The smallest station contacted was PA7JB, whose signal was consistently good copy with his 2.4 m offset dish and only 100 W – really amazing! Interference levels on the 2.424 GHz JA-band was higher than last year. I tried various combinations of filters and NB, but did not succeed in copying JA4BLC and the other JA stations.
My station was a 3.6 m mesh dish with about 150 W at feed.

PA3DZL: Jac pa3dzl@planet.nl sends news on his 23, 13 and 6 cm EME contest operation -- I worked on 1296, on 11/12 May OH2DG, UA3PTW, OK1KIR, SV1BTR, JA4BLC, I1NDP, OK1CA, ES5PC, F5SE/P, OZ4MM, SP7DCS, UA5Y (same as RK3WWF), OK1CS, DJ8FR for initial #183, JA6AHB, SD3F, SP6JLW, OZ6OL, G3LTF, DL3EBJ, I5MPK, OH2DG, HB9Q, IZ1BPN, N2UO, K2UYH, LA8LF, ON5TA, LZ2US, CT1DMK, WA6PY, 9A5AA, OH1LRY #184, SM2CEW, N4PZ, LX1DB on SSB, SM7FWZ, KL6M #185, I5MPK DUP and LX1DB for a total of 38 QSOs. I worked on 2320, on 15/16 June OK1CA, SP6OPN, SM6CKU, ON5TA, OK2ULQ, F1PYR, DL1YMK, OK1KIR, OH2DG, PA0BAT, SD3F, ES5PC, SP7JSG for initial #71, SM3BYA, HB9Q, PY2BS, IK6EIW, F5JWF, SV3AAF, CT1DMK, IK2RTI #72, OH1LRY #73, G3LTF, OZ4MM, RA3EC, PA7JB, SM2CEW, YO2BCT, LX1DB, K5GW, W5LUA, K2UYH and VE4MA #75 for a total of 33 QSOs. Heard were VE6TA and WA6PY, but I could not get their attention. On Saturday during the US window, I called CQ X for 1 hour but had no replies. On Sunday I heard JA4BLC between WiFi QRM working DL1YMK but unfortunately could not complete a QSO. I had more luck on Sunday calling CQ X and worked X-band with K5GW, W5LUA and K2UYH. I found conditions very nice. On Saturday we had very strong wind, but I did not have much difficulty with pointing. There were very nice echoes on Sunday even on SSB. I was very happy to work LX1DB on random SSB. Before the contest, I worked OK1KDD and PY2BS. On 6 cm I QSO'd on 18/19 May JA4BLC for initial #26, SV1BTR, OK1CA, ES5PC, F2CT (same as TM8PB), OK1KIR, JA6CZD #27 and DXCC 16, OH2DG, SQ6OPG, PAØBAT, G3LTF, G1ØØRSGB (same as G4NNS), ON5RR #28, IK2RTI #29, LX1DB, CT1DMK, WW2R (same as K5GW), W5LUA, K2UYH, JA8ERE #30, F1PYR, VK3NX, F2CT, VK3NX, F2CT DUP, G4CCH #31, PAØBAT DUP and SP7JSG #32 for a total of 24 QSOs. Before the contest I QSO'd W5LUA (on two different days), F1PYR, G3LTF and SQ6OPG. After the contest I added SM6PGP, LX1DB (my first 6 cm SSB) and PY1KK.

PY2BS: Bruce py2bs@me.com was QRV during the EU 13 cm contest -- I had contest QSOs with KL6M for an initial (#), NA4N, W5LUA, ES5PC, OK1KIR, SP6OPN, F5JWF (#), SM6CKU, HB9Q, PA3DZL, DL1YMK, SM3BYA, ON5TA, RA3EC (#), YO2BCT (#), SD3F, OH2DG, OK2ULQ (#), PA0BAT, CT1DMK, SP7JSG (#), OH1LRY, WD5AGO, OZ4MM, VE4MA, K2UYH, VE6TA, WA6PY, OK1CA, IK6EIW (#), G3LTF, IZ2DJP (#), F1PYR, SV3AAF, SM2CEW, PA7JB, LX1DB on CW and SSB, K5GW and WA8RJF (#). I had a very nice voice QSO with Willi and also heard PA3DZL FB on SSB, but no QSO. On the days that followed, I had 13 cm excellent SSB QSOs with CT1DMK and W5LUA. I was very happy to also work G4BAO on CW. John used his 1.9 m dish and 150W. I will be DL at the end of June to attend a ham radio gathering in Friedrichshafen, but unfortunately will miss both the 9 cm contest and the Rwanda dxpedition. I will be back in Aug, and expect to be QRV on 902 EME later this year TNX to the assistance of W5LUA.

RW3BP: Sergei rw3bp@yandex.ru reports on 77.5 GHz EME -- This month we tried took one more step toward an EME QSO on the 4 mm band. W5LUA and VE4MA tried to receive my signal off the Moon. I am happy that Al received it during a test on 12 June. The signal level was about -20 dB and it was simply a series of the letter "E". I received my own echo before this test (28 deg elevation) at the -17 dB level. This is about 3 dB worse than in Feb due to the grater atmospheric attenuation - additional noise from a warm atmosphere. I also have a poorer LNA NF at summer temperatures. It is clear that we must improve our tracking accuracy to get reliable repeatable results. For a 0.12 deg beamwidth, our mutual pointing accuracy must be on the order of 0.01 ~ 0.02 degs!

SM3BYA: Gudmund sm2bya@telia.com was active on 13 cm after a 7 month winter hiatus -- I finally managed to reassemble my 13 cm rig just in time for the DUBUS event. TX now runs a fully intact Ericsson 3G PA producing 240 W. Readjusting the feed matching with the help of a network analyzer and replacing the coax on the TX side also paid off; I now have about 210 W at feed again,

which produced great echoes. Sun noise on 14 June 14 was just above 13 dB on both 2304 and 2320. On Saturday, I worked on 2320 SM6CKU for an initial #44, OK1KIR, OK1CA, SP6OPN, ON5TA, ES5PC, DL1YMK, PA3DZL, F5WJF, PY2BS and HB9Q, on 2304 OH2DG, RA3EC #45, CT1DMK, IK2RTI #46, LX1DB, W5LUA and WD5AGO. I heard another 5-6 stations that I didn't have time to work before I ran into tree blockage at about 250 degs AZ. On Sunday I worked only OZ4MM; then DK7LJ drove up with my 300+ W 10 GHz TWTA in the trunk. He has been delivering these in person over large parts of Europe. So I went QRT and we spent the rest of the evening discussing TWTs and shaped reflector antennas. Unfortunately the moon's declination was so low this weekend that I had no useable JA and VK windows. I am now up to initial #46 on 13 cm. There is still a chance to add a few more. I have managed to get yet another six month extension of my high power permit. I have also assembled a 2424 down converter, and am interested in JA skeds.

SP7DCS: Chris sp7dcs@wp.pl has completed his first 13 cm EME QSO -- I am proud to announce SP7DCS is now QRV on 13 cm. After a lot of preparation the last few months, I was still unsure if equipment would be ready for the contest. Theoretically all elements of setup were working on my desk, but a lot of problems occurred after putting them at the dish. I was close to being QRV the week before, but then had a lot of small Murphy visits - hi. For example, for unknown reason I lost a few dB of Sun noise days before the contest - I was really deaf. And I could not use my PA due to interaction problems with my transverter. Anyway, I decided to give it a try on Saturday and was able to hear my first EME signals on 2320. I received a QRZ from HB9Q with about 10 W at feed. On Sunday morning, SP7MC joined me, and we managed to increase the power to about 20 W at feed. It was indeed an improvement as we were now able to get QRZs from several stations. Finally the OK1KIR team were able to decode our weak CW signal! We ended with OK1KIR initial #1, OK1CA #2, G3LTF #3 and OZ4MM #4 in the log. Kudos to these guys for their good ears and persistence. A short movie of our QSO with OK1KIR is at http://www.youtube.com/watch?v=baJNdg7wGmQ. The rig is a 6 m dish with RA3AQ DMH feed and ~20 W.

UA3PTW: Dmitry ua3ptw@inbox.ru on 432 using JT65B added KD7YZ for a new state. On 1296, he had initial on CW during the EU EME contest with JA4LJB, DJ8FR, OH1LRY, IK2RTI, JH3EAO, OK1KKD, IK6EIW, VK5MC and SM6CSO, and outside the contest on JT65C with RN3A, YL2GD, G4IDR, IW1DTU and R4YM. [TNX DK3WG for forwarding this info.]

VE4MA: Barry ve4ma@shaw.ca is making progress on his 77 GHz equipment. He is seeing 6 dB of Sun noise, but has not yet been able to detect RW3BP's signal. His 77.5 GHz RX system consists of an 8' dish, 2 LNAs into image filters and mixer to a 432 MHz IF with 39 dB of gain. He is also working on tracking improvements. High humidity levels have been making measurements difficult.

W3HMS: John W3HMS@aol.com is applying for the Worked All Lucca (WAL) on 23 cm EME award -- I wish to report that I have worked all 3 as follows in Lucca using JT65C with fine signals: IK5QLO, Andrea, on 23 Dec; IK5EHI, Lessandro, on 20 April; and IK5VLS, Gabrielle, on 14 June. Both Andrea and Gabrielle, I have worked multiple times. How do I get the WAL certificate?

IK5VLS has a 4 m and 200 W on 1296 from Lucca, Italy

W5LUA: Al w5lua@sbcglobal.net sends news on his reception of RW3BP on 77.5 GHz -- I received Sergei's signal on 77184 MHz on 12 June. I used Sergei's MMCW decoder software to signal average over a transmission period. The best period was the last 3 minutes of a 10 minute transmission of Es. Occasionally Sergei's short dots appeared in my Spectran display, but the dots were so short and the libration spreading was hundreds of Hz making it difficult to see in Spectran. Sergei is still optimizing a pulse rated TWT, so his duty cycle must be low. I was using my 2.4 m offset fed dish with a W2IMU feed. My RX NF measured 4.6 dB. The LNA was a 2 stage CHA-1077 unit built by WA1MBA. My best Sun noise was about 5.5 dB. Moon noise during our tests was 0.25 dB near new moon. I used K5GW tracking software to automatically adjust my received frequency to offset the mutual Doppler shift. The software updates the frequency of my Flex5000 every second. More tests are to come. I also was on for the first day of the 5760 EU/DUBUS Contest and worked 22 stations including initials with JA1WQF, ON5RR and G4CCH. I also worked SM6FHZ as a new initial on 5760 in early June. During the June VHF contest, my nearly 50 year old VA-802B Klystron blew 2 fuses and a circuit breaker. In the 33 years that I have been using the tube, it has never given me any trouble. I proceeded to fix the blown meter shunt and bring the tube up slowly. It worked fine during the 13 cm contest producing nearly 400 W in the shack and 300 W measured at the feed. So maybe the explosion was a once in a lifetime. Just as an FYI, this tube was used by W3GKP in 1970 to make the first 13 cm EME contact with W4HHK. Paul's Klystron is being used by W5ZN currently on terrestrial, but eventually will be back on EME. During the 13 cm event, I had a limited time on the air as it was also Fathers Day, but I work 18 stations including an initial with RA3EC. After the contest, I worked G4BAO (449) XB 2304/2320. John was running a 1.9 m dish and 150 W. I also worked G3LTF, CT1DMK and PY2BS on 13 cm SSB with great signals as it was getting close to perigee, and WA8RJF on CW.

WA6PY: Paul pchominski@maxlinear.com was active in the 13 cm EU/DUBUS Contest – He QSO'd CT1DMK, G3LTF, K2UYH, OK1CA, OK1KIR, ON5TA, OZ4MM, PY2BS, SP6OPN, VE4MA and VE6TA. On Saturday I was late due to other obligations and couldn't operate during VK/JA window. I operated only 40 minutes until the end of my EU window. On Sunday my window to EU was only 40 minutes. After the EU window closed, I didn't hear any other station, only my own echoes. I plan to be QRV for the 9 cm contest.

WB2BYP: John wb2byp@arrl.net reports on 1296 in June –- I worked a new station N8DJB (O/O) on 17 June. Craig only operates CW. I'm available for CW skeds if anyone would like to experiment. Call on Sat/Sun 1500 during 14.345 MHz EME Net or email me. I have also been assisting W2CNS install of 12' dish in Victor, NY. Look for Bob to be active in late summer or fall on 23/13 cm. I am planning on attending both CSVHF Conference and MUD this year.

WD5AGO: Tommy wd5ago@hotmail.com writes about his recent 13 cm activity –- It's been a while since my last report. I am back on 13 cm after some problems this winter. During the contest signals seemed down, while my Sun noise was 14 dB and Moon noise was 0.3 dB. It probably was just my ears getting back to normal. I could not be on the Moon on Sunday, but this was just as well, at 0 degs dec, the trees to my east are in the way until 30 degs EL - an increase of 3 to 5 dB of noise. My limited JA window on Friday evening prevented me from working anyone. I did QSO on Saturday W5LUA, KL6M, SM3BYA, SP6OPN, HB9Q (BIG SIG), PY2BS, OK1KIR, ES5PC, ON5TA, CT1DMK, G3LTF and K2UYH for a dozen. Heard were OK1CA, LX1DB, F5JFW, OZ4MM and WA6PY, but no new ones. I used my 3.3 m dish, HB 0.35 dB NF – 40 dB gain LNA, HB 3 ring Septum feed and 250 W (4 Spectran boards phased) at the feed. I will be on 13 cm for the summer, and then switch back to 23 cm in the fall.

WW2R: Dave eme_ww2r@g4fre.com 6 cm contest report -- Although my EME dish was gone (moving to the UK), I still wanted to work G100RSGB off the Moon for nostalgic reasons. I asked K5GW if I could work them from his station and he said sure. While I was there, I also worked some others in the EU contest. QSO'd were OK1KIR, PA0BAT, ON5RR, OK1CA, PA3DZL, G3LTF, IK2RTI, G100RSGB, F2CT, SQ6OQG, W5LUA, SV1BTR, ES5PC, SP6GWN, F1PYR, G4CCH, SM6PGP, K2UYH, VE4MA, JA6CZD, JA8ERE and JA1WQF on Saturday afternoon and evening only. No VKs were heard. The only escapee was LX1DB. It was a totally different experience than using my 3 m dish!

ZS6AXT: Ivo zs6axt@telkomsa.net is not having a much luck – About a month ago I had a direct lightning strike to my tower. It was an exceptionally strong one and wiped out all the electronic stuff in shack and house! For 3 days I was without power and telephone. The list of damaged equipment is not yet finished. I am not sure about my radios, as I will only know when power is restored to my shack, which has not yet happened. I am very depressed as it is not clear when if ever I can be active on ham radio again. I will know more in about a week's time, will let you know then. [Does anyone have more information on Ivo's situation?]

ZS6OB: Pine pienaarja@gmail.com is now regularly QRV on 70 cm EME – My setup on 432 is an ITB 1 kW SSPA running 750 W into 4 x 22 el HB K1FO yagis with M2 T/match (all mounted side by side horizontally with mechanical polarization rotation) and an ARR LNA to an IC-9100 on RX.

K2UYH: I a.katz@ieee.org worked on 432, on 29 May at 0525 ZS6OB (19DB/24DB) on JT65B – Moon still in the trees and 0545 K4MSG (25DB/25DB) JT65B for mixed initial 854* - Paul's first 432 EME QSO. I had planned to operate the 13 cm EU Contest from its start, but when I went to put my station on the Moon I discovered that my computer had failed. It turned out to be a bad motherboard. I ended up missing my JA/VK window and did not get my control tracking going until well after the start of my EU Moon window. I QSO'd on 15 June PY2BS (O/O), OK1KIR (559/559), OZ4MM (559/559), HB9Q (589/559), WD5AGO (559/559), CT1DMK (559/559), WA6PY (559/559) and VE6TA (559/559), and on 16 June G3LTF (559/559) XB, PA3DZL (559/559) XB, SP6OPN (569/559), K5GW (579/559), OK1CA (569/559), partial RA3EC (559/-) - never got my, call, partial ES5PC (559/-) – also not complete, VE4MA (559/559) and NA4N (559/559). I also heard WA8RJF. I ended with on 15 QSOs about half my total last year. I plan to be QRV for the 9 cm contest, but will first try to complete with the 9X0EME dxpedition station, before I remove my 1296 feed.

NETNEWS: **DK3WG** recently added an initial on 432 JT65B with VK3AMZ. **K5QE** was active again on 432 EME during the ARRL VHF Tropo Contest on 8/9 June. Unfortunately his announcement arrived too late for the last NL. **WA4NFY** has a 12' with VE4MA feed and is receiving the beacon. He has a 2C39 amp with about 50 W. **W2CNS** is QRV from NY on 432 EME and working on mounting a 12' dish for use on 23 cm. **KJ7OG** in AZ is on 432 EME and working on higher power SSPA. **VE5KKZ** should be very closer to being QRV on 1296 EME. **WB7QBS** has his 910H back from repair and is looking for skeds and activity on 70 cm EME. **VE6TA** will be on 9 cm for the EU contest.

FOR SALE: **KD7YZ** is looking for two runs of ½" or better hardline of 120' to 130' in length with 'N' connectors. Contact Bob at kd7yz@denstarfarm.us. The seller must be willing to ship. **WD5AGO** has for sale two6 cm CP feeds and a 9 cm CP feed. The connector types are selectable. He also has a cavity LNA for 70 cm and some dual stage LNAs for 23, 13, 9 and 6 cm available. All have custom machined enclosures. Contact Tommy at wd5ago@hotmail.com.

2013 Swedish EME meeting at Orebro: There were 32 attendees at the 2013 Swedish EME meeting at Orebro on 25/26 May, who enjoyed a fascinating set of presentations about EME, as well as enjoying the opportunity to meet, greet and discuss with old friends. These notes summarize the presentations (also see the www.moonbouncers.org website). The thanks of everyone go to SM4IVE for organizing the event and to all the presenters and supporters, especially SM0ERR and SM5BSZ, who supplied and manned the measurement suite. **SM6FHZ** described a suite of Kumar (VE4MA) feeds with 5 step septum polarizers, carefully optimized for f/D ratios 0.32 to 0.42 for 23, 6 and 3 cm. The focus was on providing optimum amplitude and flat phase across the aperture and low cross polarization. The measured performance of return loss (RL) and isolation shows excellent agreement with the modeling results. The W1GHZ feed efficiency program is used for evaluation so direct comparisons can be made with other work. All dimensions are given for 23, 6 and 3 cm. See http://www.2ingandlin.se/SM6FHZ.htm. Hopefully, in time, Ingolf will add 9 and 13 cm dimensions. With this suite and the septum fed W2IMU described by N2UO (see http://www.ok1dfc.com/EME/emeweb.htm), we now have for 23 cm a set of optimized feeds covering 0.32 to 0.6 f/D. Ingolf cautioned against scaling between frequency bands, so we probably need some more work on the septum fed W2IMU for 13 – 3 cm. For those who play with feeds and dishes, Ingolf's slides 13 - 16 are of great interest because they show that because of the variation of cross polar response with choke position, it is possible to maximize Sun noise (randomly polarized), but then find yourself with sub-optimum coherent signal performance. **SM6PGP** described the manufacture of the new design Kumar feeds for 6 and 3 cm using his home workshop. For those who build feeds, I strongly recommend looking at his slides for some useful tips on manufacture and assembly/alignment. The designs use standard pipe sizes, which is a big advantage. Both Hannes and Ingolf have used these feeds in their systems with excellent results. **SM5BSZ** outlined several potential error sources when making accurate total power measurements of Moon (or radio star) noise as a means of evaluating system noise temperature. Very small Y factor ratios are involved. For example because most LNAs gain values are very sensitive to input source impedance a small change in feed position relative to the dish surface could induce an error. A more accurate measurement of Moon noise can be made by injecting a small stable signal into the front of the system and making a SINAD measurement instead using LINRAD. Leif is also making precision NF measurements using a special setup described on his webpage http://www.sm5bsz.com/lir/loss/1296/hp8970a/hp8970a-auto.htm. **SM0ERR** described how accurate measurements of very small losses in components like adaptors and relays can be made. The magnitude S11 of the item to be assessed is measured using precision open and short circuit terminations at its output terminals. By taking the average and dividing by 2, the loss can be measured. This is best done by using an automatic network analyzer. (But it can be done manually). Some actual results were presented. Note that at 23 cm with NFs now in the 0.2 dB region, these items have even more effect on Tsys. Mart also measured the Noise Figure of a large number of preamps and the results will be on http://www.moonbouncers.org. **DJ8FR** demonstrated the use of a highly portable VNA made by SDR kits http://www.sdr-kits.net/Webshop/products.php?14&cPath=5 to measure the RL and isolation of a 23 cm RA3AQ feed. **RW3BP** described the progress on his 76 GHz system. The essentials are a 60 W TWT (that requires 31 kV), a 2.4 m offset dish and several 4 dB LNAs. But that is just the start! Sergei described a long and painstaking process of finding the correct focal point of the dish; and similar efforts in all other areas of the system. The reduced radar cross-section of the Moon, libration and atmospheric absorption add extra losses of 25 dB in summer, reducing to 19 dB in winter (that's a Moscow winter). He showed clearly visible echo results using stacked up echoes on Spectran. His is a unique setup involving serious engineering. Sergei hopes that someone in NA will soon construct a similar setup for the first 76 GHz EME QSO. **RA3AQ** presented the results of modeling using the OM6AA full dish simulation of some of his feed designs in various dish sizes. With the low sky temperatures at 23 and 13 cm especially, and very low noise figures in the 0.2 dB region, there is much to be gained from careful feed and f/D choices. A lot of very interesting data is available from his presentation, and if there is one clear message, it is this. Looking at the W1GHZ curves of dish efficiency versus f/D ratio, be sure to stay on the lower (smaller f/D) side of the peak. **PA2DW** brought us up to date on the PI9CAM Dwingeloo dish project. He showed a fascinating film that was shown at EME2012 and emphasized the use of the dish for educational outreach. An enormous amount of repair and restoration work has been done by volunteers as well as professionals and the hope is that the dish will be back in operation in Nov/Dec this year. Many hundreds of QSOs were made on 70 and 23 cm before the re-build began. Hopefully with the dish profile improved from the repairs (with new *magic* mushrooms!), there will be some more operation on the bands above 23 cm. **SM6FHZ and SM6PGP** described a novel 23 cm feed for small dishes (1.8 and 2.4 m) comprising a patch housed in a cavity with a beam-forming ring in front. Ingolf modeled this comprehensively and optimized its performance for two variants; one with the ring covering f/D 0.34 to 0.43, and a second for 0.3 to 0.38. Detailed dimensions and construction details are given on his webpage, quoted earlier. There are two orthogonal feed points, which can be fed with a 90 degree hybrid to produce the required CP and with SSPAs spatial combining can be utilized, saving a high power combiner. Hannes has used this feed on his 1.8 m dish to make both CW and JT65 QSOs, and has copied LX1DB and OK2DL on SSB. **HB9BBD** showed a fascinating film detailing the obtaining, restoration, installing and then re-installing (to get an improved window) of his 10 m dish. This involved substantial amounts of steel and concrete and the use of helicopters and large cranes, definitely not for the faint-hearted! With its hydraulic control system, it is a beautiful piece of engineering. The film was also very entertaining and the on-air results speak for themselves. **DL1YMK and Monika** described their 2012 EME dxpedition to Corsica. For the first time they added 6 cm operation to the bands worked on the 4 m stress dish and also (another first) used 10 GHz with a separate 1.8 m solid dish. For details of QSOs made on 70, 23,13,6 and 3 cm see http://www.ok1dfc.com/peditions/ymk2012/dl1ymk2012.htm. 9 cm is not available in French territories. Michael concludes that the stress dish is not good enough for 6 cm, although he did make 5 contacts, and that a 1.8 m dish is too small for 10 GHz CW contacts, so his plan is to find a way to take a 2.4 m dish on future expeditions for those two bands. It has to be both light and transportable in sections. (He is considering offset following discussions after the presentation!) We could not determine the location of this years (possible) planned expedition, but were told that a complete absence of small biting insects inside the house is now an essential for the logistics manager. **DL1YMK** described the design and construction of the two 30 W SSPAs that he made for the Corsica expedition. These used devices from ELISRA TV links combined with ring hybrids and needed a significant amount of "snow-flaking" to tune then up. Michael emphasized the need to protect the eyes while doing this as there is a significant radiation from the strip line discontinuities. Useful device numbers are FLM1112-8F, FLM1112-12F and TIM 1112-8. **SM2CEW moderated the Round-up session.** After thanking everyone who had contributed to organisation and presentation, he emphasized 3 things we needed to do to increase EME activity: Inspiration, Information and Focus. Inspiration came from the excellent technical and operating work that we had heard about at this meeting. Information comes from the distribution of this material, which will be done by publishing on the http://www.moonbouncers.org/ website and by distributing a summary to the appropriate newsletters and interested groups, and Focus comes from ensuring that there is a solid presence of CW activity in addition to digital operation. CT1HZE, who organizes the DUBUS contests, asked that there be a discussion on timings, dates, etc. Points

made were: Please continue to organize the contests. One suggestion made was to have one day only per band and a pairing of bands for the weekend chosen, for example 144 and 432 on Saturday – Sunday. There is of course the risk of bad weather, if we go for only one day per band. There was also a call for the weekends chosen to be lower loss (i.e. closer to perigee), but several disagreed citing horizon blockage. (This will be a problem for at least 3 years until high Moon declination and perigee get back into synch.) In order to get dates into diaries and maximise activity, it's essential to have the contest dates announced in DUBUS by Oct at the latest. *Activity Weekends:* Yes, continue, as they are noticeably increasing activity on the bands above 13 cm. We will have to change the date of the 2013 9 cm weekend as it clashes with the 9 cm DUBUS contest. We will move it to share the 6 cm AW, 3/4 Aug. *CP on 3 cm* with the availability of the 10.368/10.450 GHz septum polariser Kumar feed described by SM6FHZ, there was a strong feeling expressed that CP should become the standard there as well as on the lower bands. *Encouraging cross-mode contact:* Suggestions were replying to JT CQs on 23 cm using SSB and on 70 cm calling CQ on 432.060 (which has worked), but both require the JT audio to be switched on! PI9CAM reported considerable interest in CW operation among young visitors to the big dish, seeing it done on a screen was more commonplace for them.

FINAL: 2014 EME Conference planning has begun. The conference organizing committee has met with the local Office of Tourism and were very well received. They also visited the Conference Center at the "Pole Phoenix" near the Radôme at Telecom City. They expect to have all the details about accommodations and special tours/programs defined by the end of Oct and published online. They need to know as soon as possible (before the end of July) who is interested in attending. Please email Guy, F2CT at F2CT@wanadoo.fr if you think you might attend EME 2014.

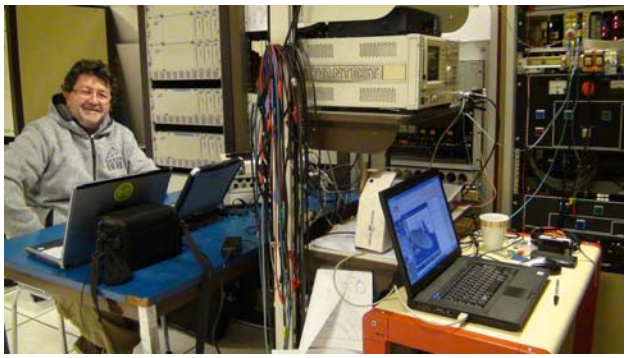
The annual JA EME meeting took place in Tsuyama city in the JA4 area on 1/2 June - see picture below.

Following is a photo of K4MSG's first exposure to EME. In the 1960s, while he served as a Chief Petty Officer on the Navy "Technical Research Ship" (a euphemism for "spy ship") USS BELMONT, (AGTR-4), he was involved with the Navy's "TRSSCOMM" system (Technical Research Ship Special COMMunications), the AN/SRC-33(XN-1). This system used a 16-foot dish antenna on a computer-controlled X-Y pedestal along with a 12 kw (max) transmitter and a receiver front end having a parametric amplifier (no GaAs FETs back then!). The ship transmitted on 2300 MHz and received on 1800 MHz, while the shore station (with a 65' dish) used the opposite, so it was a full-duplex link. The ship normally used RH circular polarization and the shore station LH. Transmission was two channels of 100 wpm radio teletype, and as long as the Moon was at least 5 degs above the horizon at both locations, it was like a landline! The two shore stations were in Cheltenham, MD, and Hawaii. It was FANTASTIC for Paul's South American deployments because in his words "HF comms from the southern latitudes *REALLY* sucked a lot of the time due to the fact that there were no NAVCOMMSTAs south of Balboa in the Canal Zone". The operator/maintainers typically ran the transmitter at about 6 kw, so there was lots of reserve power available from the klystron PA. The dish had a bore-sighted TV camera and only needed to be within 1.5 Moon-diameters for communications to take place. As this was back in the days before GPS, they used to tease the ship's Navigator by telling him (by means of our computer readout) where the ship was *REALLY* located!

Dish used by K4MSG for EME back in the 60's

This pretty much covers the news for this month. I hope to catch some of you off the Moon, especially on 9 cm. 73, Al – K2UYH

Some of the EMEer at Dayton, L-R W4MO (Stew), KB8RQ (Gary), K2UYH (Al), WA8RJF (Tony) and KL6M (Mike)



F2CT operating on 6 cm during the EU Contest