432 AND ABOVE EME NEWS
JANUARY 2009 VOL 37 #1

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THE NL WEB VERSION IS PRODUCED BY W6SZ AND AVAILABLE AT http://www.nitehawk.com/rasmit/em70cm.html

CONDITIONS: I want to pass on the many holiday greetings and wishes for a wonderful New Year included with this month's reports. As expected the intensity of the RF illuminating the Moon in Dec was much less than the past few months, but there was still reasonable activity if not the best of conditions. The pace will pick up in Jan with the V5 dxpedition, see below, encompassing this month's activity week (AW), which should be 10/11 Jan – this is by far the best weekend but not the best for sleep! The AW was shown in the 2009 Moon Calendar in the Dec NL as 3/4 Dec. The 70 cm CW activity time period (ATP) is scheduled for the 3rd from 2000 to 2200 and the 4th from 1100 to 1300. You may also see some moon activity on 18/19 Jan during the ARRL's tropo contest. This is not a particularly good EME weekend, but the ARRL VHF/UHF contests do accept EME QSOs – the exchange is the 4 character grid square. Also coming up is the 1296 EME SSB Contest on 7/8 Feb (1 moon pass).

FIRST WAC ON 2300 MHz: The big new this month is that LX1DB has received 13 cm WAC #1. He accepts the award in memory of OE9XXI and W4HHK who contributed so much to EME on 13 cm. His contact were for EU OE9XXI on 13 Oct in 1984, NA W4HHK on 17 Dec in 1988, AF ZS6AXT on 10 Feb in 1998, OA VK3NX on 15 Dec in 2007 and DL1YMK/CX on 3 May in 2008. Congratulations Willy – very well deserved. [Sorry I could not find a picture].

NAMIBIA EME DXEDITION: Dan (HB9Q) **dan@hb9q.ch** reports that all is go for V5/KT6Q (JG73ni) -- We are on schedule! Current plans are to complete packing on 4 Jan and depart from Pretoria on 5 Jan for the trip to Luderitz (1600 km by car towing a trailer). This trip is anticipated to take two days, followed by a day to assemble the station. Look for us starting on moonrise of 7 Jan. We intend to operate 432 (& 144) for all our moon-windows, and 1296 for limited activity times. We expect to closedown around 15 Jan and arrive back in Pretoria on 18 Jan. Our call for all EME operation will be V5/KT6Q. We will use JT65, but will do some CW on 432 (& 144). After we arrive in Luderitz and check-out the QRM situation, we will announce our operating frequencies – see **http://www.mmmonvhf.de/latest.php?id=2027** for the latest information. We will use on 70 cm 8 x M2 432EME-12 yagis on a low tower manually rotated with a TE Systems 180 W PA and ARR preamp, and on 23 cm 1 x 59 el yagi (21 wl), 80 W DJ9YW transverter with no preamp (DL3OCH's station). The operators will be HB9CRQ, N7BHC, ZS6AC, ZS6JR, ZS6OB and ZS6WB. We hope to have (limited) Internet access from our QTH and will update once a day the stations worked on the HB9Q webpage. EME QSLs should be sent to HB9Q, P.O. Bbox 133, CH-5737 Menziken, Switzerland.

8J1AXA: Mike (JH1KRC) jh1krc@syd.odn.ne.jp reports JA Dec BIG DISH EME tests on 70 cm -- The operating team of 8J1AXA enjoyed amazingly high activity and overall good conditions (condx). On 13 Dec condx were very stable and favorable in the NA window. Our fixed V-pol seemed to fit the H-pol used by many in NA. During our second SSB QSO with K1RQG, Joe changed his pol from H- to 45 degs, but it was a little weaker, and hardly audible with V-pol. In the EU window the condx were unstable and changed quickly. Polarization seemed to be changing by 45 deg. or so. Our echo was not so strong as in the NA window as were the H-pol stations from JA and EU. We were sorry to miss many of regular stations from NA and EU because of the stormy weather (ice) over there. We had to change our TX frequency from 432.030 to 432.028 because of birdies from our antenna tracking computer! Also our TX power reduced gradually down to about 150 W. We do not know the cause as yet, but suspected a SWR problem after repeated CQs on JT65B. We worked N4GJV (559/O), K1RQG (579/579) and on SSB (57/57) and later (55/57), W8TXT (559/569), JJ1NNJ (579/569) and on SSB (53/43), JA9BOH (539/539), JA6AHB (579/579), JH4JLV (429/439), K4EME (439/339), DL7APV (579/549), JA5NNS (579/579), SP7DCS (439/559), UA3PTW (579/579), DG1KJG (519/529) and DL9KR (589/589), and during the ATP (1900 – 2100) I1NDP (589/559), DL7APV (579/579), JJ1NNJ (559/559) again, PA3CSG (569/569) and IK6EIW (449/559). We also called CQ on JT65B but received no replies. We worked all the stations that we heard and hope that we did not miss anyone. The 18 m dish seems to have the beamwidth of less than 3 degs based on our sun noise measurements. (The Sun might be too large in size to give the exact beamwidth of this antenna). We stopped operation at an elevation of 5 degs due to the ITU regulation. After moonset we made ground-wave QSOs (using low power) with some 60 stations within approx. 600 km range. Next operation is not yet set, and maybe around the year end or early New Years day. We also plan to have invites from school children in the future. The team included JH1AOY, JA1DYB, JE1CKA, JE1BNZ, JE1OYE, JE1KOE, JH1KRC, JM1GSH, JF6DEA, JA9COB, JA0GPT, JA0TJU, JR0XHL, 7N1KAE and ON4MU/JF1EIO/AI4XZ (visiting from Tokyo).

8J1AXA "BIG DISH" looking towards the Moon

DL1HYZ: Ulrich uli.dl1hyz@t-online.de in JO61ah has been QRV on 1296 for a few years, but recently increased his power with a YL1050 PA by DL3FI and now has 950 W in the shack. He is using a 3.1 m solid dish and HB9BBD preamp. He was QRV during the recent ARRL EME contest and is normally active in EME contests.

DL3OCH/HB9EHJ: Bodo dl3och@gmx.de sends his New Years greetings and says that although he has nothing planned for this holiday season (his gear is going to V5 with HB9Q), look for a nice surprise around March. He does not want to say anything until his plans are firmer, but he should have a signal that can worked on both CW & JT.

BX1AD 2 yagi array used on 70 cm EME

G3LTF: Peter's g3ltf@btinternet.com Dec EME report -- Not a lot of activity to report this month as we were away for most of the AW, but I did make a few interesting contacts. On 8 Dec I worked on 1296 VK3NX, I5MPK, RW3PX and W4OP. The moon declination was low, about +6 degs, and so moonrise here is badly obstructed by trees but I was able to work VK3NX through a gap between them. I also worked HB9IZ for his first EME QSO. We had a long CW chat and he told me he was operating HB9HAL's station by remote control over the internet. On 14 Dec I worked VK3NX with excellent signals and we exchanged some SSB for the first time on 1296. I also worked DF3RU, JA4BLC, SP7DCS, OZ6OL and ON4BCB. On 15th Dec I had a nice CW chat with HB9HAL. I shan't be able to be on for the SSB contest this year, but I will be looking for QSOs when the moon is above 0 degs DEC.

HB9HAL 10 m dish – group consists of HB9HAL, **HB9IZ, HB9AJF, HB9CKL, HB9DGK, HB9EFP, HB9MDP, HB3YDL and HB3YLF.**

HB9HAL: Chris hb9hal@hb9gr.ch discusses the complications surrounding remote control operation of his club's 1296 EME station -- It is several weeks since our group member HB9IZ started making QSOs with our remote controllable moonbounce system. We have been accused of violating EME "Initial rules", operating illegally and violating a gentlemen's agreement on EME station identification. One EMEer requested us to stop operating under individual callsigns. Things seemed to have quieted down now. The great majority of the responses we have received (> 90%) were in favor of our multi-call operation. We do not plan to stop operating. For all in our group, an EME contact is still a miracle. It is simply fantastic to hear one's echo via the moon and to contact other hams from all over the Earth through EME. HB9IZ, or any of the other members of our group have no intention of *fooling* other hams or of belittling the achievements EME-pioneers. Indeed, we have the old Collins receiver that was used for one of the first ever EME QSOs between HB and KP4BPZ (Arecibo) back in the 60's. In honor of these pioneers, we have put a video of that historical event on YouTube. We are now in the process of applying for a group call to be used at our EME station during contests and other occasions. Talking to our Telecom authorities today, we were informed that by using our EME-system in remote-control, it is not only legal but mandatory in HB-land to use the individual call of the Ham who uses it. As you can see, we are law-abiding hams and have done the right thing from the start. It is our plan to assist even hams who are restricted to the use of small antennas and low power. Our intention is to expand the limits of this great hobby of ours and to talk to other EME enthusiasts worldwide without the restrictions of initial counting. We want to spread interest in ham radio and moonbounce among youngsters. The members of our group are instructed to use their individual calls when remote-controlling our system. For those of you who are in doubt as to who is operating the system, you may click on www.radiosky.ch. We welcome you to establish a contact with us and the particular member of our group using the system. [There seems to be some confusion on initial QSO counting. It is a system for measuring how well one is doing on EME. It is no different from counting DXCCs, grid squares, states, etc., worked via EME. Individuals can or cannot keep track of their initial QSO count as they wish. The initial rules (for 432 and up) set standards on what counts as an initial – else there would be no way to make comparisons. The rules say nothing about identification. It the responsibility of those keeping track of initials to make certain that they do not count the same station multiple times. Obviously when EME stations change calls for different operators, keeping track of initials can become a problem. (The same problem exists during VHF Contest, if a station changes its call during a contest to give out multiple contest contacts). This may be what was meant by a *gentlemen's agreement*. Multiple calls are used at the same EME station for many reasons. It is what I call a "good practice" to try to make known (*publicize)* the calls involved when this is done to minimize the confusion. It would seem that there are procedures you could follow that do not violate the Swiss law (possibly …/HB9HAL), but still allow eliminate the confusion over the station being used. In any case the initial rules say nothing about how you should operate your station].

I1NDP: Nando nando.pellegrini@tiscali.it reports on his Dec 70 cm AW/ATP activity -- Conditions were very variable. They were better during the first period, but worse in the second. At my place, it was raining continuously and very heavily at times. It is difficult to say how the rain affected signals. For sure the band was not too populated. I worked all stations, I heard. When the CW action slowed, I switched to digital but found little activity. It was nice to work for the first time 8J1AXA. When I had the QSO with them, their signal was not very strong. I QSO'd on CW unless noted on 13 Dec at 1837 JA9BOH (549/559), 1842 JJ1NNJ (559/569), 1855 SP7DCS (439/559), 1903 SV3AAF (549/559), 1905 DG1KJG (439/549), 1911 8J1AXA (559/589), 1925 SP6JLW (559/559), 1945 IK6EIW (439/559), 2001 JA5NNS (559/579), 2011 DL7APV (579/579), 2109 M0EME (23DB/14DB) on JT, 2136 S53RM (9DB/11DB) on JT and 2151 F1NWZ (0DB/6DB) on JT, and on 14 Dec 02:28:00 CW K1RQG 569 579 2008- 12-14 02:32:00 CW UA6LGH 549 569 2008-12-14 at 0236 K0RZ (559/559), 0244 WE2Y (559/569), 0245 WA4NJP (6DB/7DB) on JT, 0339 VE2ZAZ (27DB/19DB) on JT, 0344 EA3XU (21DB/16DB) on JT, 0420 W7AMI (22DB/14DB) and 0423 VE6TA (549/579).

JA6XED: Hisao ja6xed@kumin.ne.jp retuned to EME after a long absence, but now on 23 cm -- I was able QSO during ARRL EME Contest in Nov on 1296 OK1DFC and DL0SHF. Unfortunately, I was QRV for only at very short time because my antenna EL rotator broke. I plan to be on next time for a much long period. I now have a PLISH PA. This type of PA was bought from HB9BBD by several EME members in Japan. I modified my cavity from grounded grid, to ground cathode (grid drive) operation. My remodeling evidently succeeded as I shown by my QSOs. My results were fantastic. I am currently operating it with 20 W input for an output of 400 W. [I asked Hisao to send more information on the modification].

JH1KRC: Mike jh1krc@syd.odn.ne.jp writes -- I have been involved with 8J1AXA and had no time to operate from my own station. I have modified my old Toshiba TWTA originally for 14 GHz for operation on 10.45 GHz. It produces ~ 180 W now. I used X-directional couplers, one for 14 GHz/60 dB and another for 10 GHz/40 dB with an HP437B and 14 GHz dummy load. The waveguides (WR75 and WR90) were directly connected using clamps for testing. I still need to do some work for antenna matching. The next step will be to investigate licensing with telecom officials. Regarding questions from WB2BYP on his TH-308 PA, 15% efficiency is about right. He might try changing out the plate bypass. I think the efficiency maybe improved with a link-coupled output. JA6XED uses this method with several Plisch TH308 cavities (7 sets) and I use this coupling for my TH327 with good results. Output coupling and input matching are important for GG PAs. Good grid grounding is important as well. At higher frequencies as 23 cm, electrical connections are very important to maintain the proper phase! Loose contact of fingerstock, bypass caps, and different lengths of electrical connections, etc. may quickly deteriorate the efficiency. So do not forget to tighten the screws each time you try to tune. By the way, especially in winter when it's dry, Capton and Teflon insulators may collect metal dusts. Wipe, otherwise it can perforate!

K1RQG: Joe's k1rqg@aol.com activity report for the Dec AW period. I was on 70 cm and worked on 7 Dec WA4NJP, DG1KJG and VE6TA on CW and SSB, on 8 Dec WA4NJP on SSB, on 9 Dec DL5FN, OK1TEH (single yagi) and LZ1DX, on 13 Dec W7CI, K4EME, 8J1AXA on CW and SSB, JA9BOH, JH4JLV, N4GJV, JJ1NNJ and 8J1AXA again on SSB, and on 14 Dec N4PZ, I1NDP, WE2Y, UA6LGH, K0RZ, WA4NJP, VE6TA, K2UYH, N4GJV, W8TXT and DG1KJG. So "yes folks" 70 cm EME is alive and well. It just needs more stations to blow the dust off their rigs and get on the band. Keep in mind for all bands (Dec AW), there was terrible weather around the globe!

K2DH: Dave k2dh@frontiernet.net has a new SSPA for 1296 -- I haven't been too active since the ARRL EME contest, mainly because I sold my tube PAs (including my N6CA "driver") right after the second weekend so I could afford a new 500 W solid state beauty built for me by Goran, AD6IW. I ended the contest on 23 cm with 67x33, which is way up from last year with the same station. It is indicative of the large amount of activity on 23 cm this year. 1296 really did sound like the low end of 20 m at times! While waiting for the new amplifier, I did get on a bit with just the output of the transverter – 50 W in the shack, about 30 at the feed, just to play a bit with Spectran. My echoes were surprisingly solid (in the loudspeaker) and I worked on 6 Dec HB9HAL (569/529) on random. I now have the new SSPA, which made for a very nice late Christmas present - hi! It will do 562 W out with less than 40 W of drive. It seems quite happy to just sit there at that power, pulling a bit less than 40 A at 28.9 V. I haven't detected any fade with time/temp. It uses LDMOS devices designed for the cellular base station industry, manufactured by Freescale Semiconductor and is based on Goran's recent article in DUBUS. He's built in

overvoltage, over current, and overdrive protection, and the devices are built to withstand 10:1 VSWR, so I'm hoping durability won't be a problem. The devices are available relatively cheap - about $US24. My immediate plans are to be as active as possible on 23 cm, but I've also just received a 13 cm and a 9 cm LNA from WD5AGO, so I'm working toward being active on those two bands in a month or so, weather permitting.

K5PJR: Tony k5pjr@centurytel.net is temporarily QRT -– I was on 23 cm for the Dec AW. I worked W5LUA, but am wondering if the dish ever really moved fully onto the moon because it never moved again until I manually cranked it back! It was dark, cold and windy at this time. I lost my second drive, so much for buying salvaged material! So much for fun! EMEers need to be blacksmiths! But I will be back on the moon soon!

K6JEY: Doug dougnhelen@moonlink.net sends his latest news -- W6SZ (Rein) and I continue to refine the "sidewalk dish" 23 cm station. I have a new sequencer and a new laptop. The old ME machine became too unreliable and created too many conflicts. I have been working on HF JT mode to hone my skills with the program. It has been very enjoyable. I have also been playing with the SDRIQ receiver and found it to be a good measuring tool as well as panadaptor. We are available on both 432 and 23 cm on both CW and JT modes.

K8EB: Erv mrdxcc@sbcglobal.net in EN73cb completed his first EME contacts on 23 cm during the Dec AW – On 13 Dec I made my first contacts on the moon on 1296 random with HB9HAL #1 follow by LA9NEA #2. I was nervous as a novice with one crystal in his DX-40 and straight key. It makes even the old ones a bit sweeter. Let me say a big thanks to all who have stuck with me and gave me so much help and answered my never ending questions. If I missed some people calling, my apology. I will keep working to improve the station here and will be looking for more QSOs off the Moon.

LA8LF: Anders expresses disappointment that his request to operate on 13 cm from the Canary Islands (EA8) has been rejected -- I understand that 13 cm is not open for Amateur Radio usage in Spain. Spain is the only country within the CEPT group of countries that does not allow 13 cm amateur radio usage. My application was sent on 30 Sept. On 8 Oct, I received an e-mail from *el Jefe* [Commander-in-Chief] himself asking for more information. His mail was quite promising and as a result I brought with me from Norway, on 3 Nov, 32 Kg of 13 cm equipment. My 3.7 m dish with W2IMU 13 cm feed and W2DRZ tracking system was installed when the negative response arrived on 19 Nov. I will stay in EA8 until early April.

LA9NEA: Viggo la9nea@online.no reports on his recent activity and plans -- I worked during the Dec AW on 1296 SP7DCS (549/549), SM6FHZ (559/449) – had some tree block during the QSO, SV3AAF (559/559), G4CCH (579/569), JA4BLC (569/559), GW3XYW (569/559), OZ6OL (559/559), DF3RU (559/559), W4OP (559/559), UT5JCW (559/579), NY2Z (559/569), W3HMS (O/O) for an initial and my first attempt on JT65c VE7BBG (17DB/O) and partial LY2FE on JT - not complete. I also received a very nice 'SWL' report from PY2MJ. My 6 x 7289 PA went QRT yesterday, so I used my 250 W SSPA. All QSOs were with my SSPA at full power on CW and 100 W on JT65c. On 20 Dec I added ES6RQ (O/O) on JT, RD3DA (O/O) on JT, G4CCH (O/O) on JT, IW2FZR (559/559) CW and G4CCH (569/569) CW. This was with the 7289 PA with power set on JT65c to 150 W and on CW to 450 W. I am also preparing for 13 cm EME activity. The transverter from DB6NT has arrived and is tested. My preamps from G4DDK and DB6NT play well and my 250 W SSPA is also ready for service. I expect to be ready for moon tests during Feb or March.

LU7FIA: Willy lu7fia@hotmail.com is part of a new group working on EME from Argentina (FF97pa). On 16 Nov they completed their first QSO on 432 MHz EME with HB9Q using JT65B. They were running only 70 W from an IC 910H and 2 x 19 el yagis. They also copied DL7APV (24DB). They also want to become QRV on EME on 23, 13 and 7 cm. Lucas, lu1fam@yahoo.com, another member of the group asked about help with equipment for these bands. They are particularly looking for a rig or transverters for those bands.

N4GJV: Ron qstdemb@yahoo.com sends his Dec
432 EME activity report -- I don't have a great deal to report this month. I participated in another radio activity, during the AW, which limited my EME time. Conditions varied considerably and seemed to be poor much of the time. Non-reciprocal and/or poor polarity alignment may again have been a major influence on my observations. I QSO'd on 13 Dec 8J1AXA and K1RQG, and heard JA6AHB, W8TXT and JJ1NNJ, and on 14 Dec K1RQG, K2UYH and JJ1NNJ. I1NDP was heard very loudly, but did not respond to my calls. I also copied W8TXT, VE6TA and WE2Y. I plan to be more active during the Jan AW.

NC1I: Frank frank@nc1i.com sends an update on his EME array problems -- My plans to switch out the prop-pitch AZ drive on 11 Dec fell through thanks to a record ice storm that hit much of New England. Due to upcoming Holidays and family travel plans, it will probably be at least a couple of weeks before I can coordinate help to finally get this done. With any luck we will make it on for the Jan AW, but don't hold your breath. The good news is that I did not suffer any damage to the antennas here. In addition to the 432 EME array, I have many HF antennas including a 4 el 40 m yagi at 130'. Any ice accumulation here would have been disastrous. We were right on the edge of the ice (elevation wise). My highest HF yagi (at 144') had a light coating of ice (probably less that 1/4") but was drooping quite a bit. The 40 meter yagi, just 14' below it had almost no ice on it. All of the other yagis and HF wires, ranging from 120' down to about 40' had absolutely no ice. I sit at the base of the Berkshire Mountains, just one mile to my west. From my QTH we had a great view of the rain/ice line near the bottom of the mountain. Damage above the ice line was devastating. Some folks may not have power for weeks. Postings from the (YCCC) HF contest club indicate wide spread damage throughout much of New England. Many stations lost everything. We were very lucky here!

OH2PO: Jukka jukka.sirvio@luukku.com reports that his team ended the ARRL EME Contest on 432 with a final score of 70x30 on CW -– We did not do any JT this year. We did enjoy working some new stations this year, but we had some problems with the antenna steering and missed the last pass on 2nd weekend. Conditions were quite variable and the activity low as it has been for the last few years. Operators were only myself (OH6DD) and Matti (OH2PO).

OK1DST: Lexa kobranov@amoscz.cz was QRV for the 13/14 Dec AW -– I worked on 23 cm via JT65 PA3CSG, RW3BP, OK1DFC and PA3FXB. My signal is still drifting some tens of Hz, but a Rubidium standard has just arrived, which should allow me to solve this problem.

OK1TEH: Matej ok1teh@seznam.cz continued in Dec to add 70 cm QSOs with his single yagi –- I confirm the CW QSO with UA3PTW reported in the last NL. It was my mixed initial #21*. Before the ARRL EME contest I made my next initial with PI9CAM with a perfect CW signal for #22*. We also had a partial on CW on 23 cm, where I have 250 W to a small 17~18 dBd dish with a linear pol feed. They heard me very well – see http://ok1teh.nagano.cz/eme/23cm_ok1teh_pi9cam_080727_1151_filtred.mp3, but their signal was just 1 dB above the noise with fast QSB on my end. I want to make my first CW QSO on 23 cm with a good sound record and without the use of deep search in brain. I sent only (T) reports. We will have to try again next time. Since then I have switched to 1/2" Andrew coax (10 m long), which is nearly 2 dB better the old line. Before the contest I also copied JT EME signals from OK1DFC on 23 cm at the (26dB) level, but this level was probably due to my old transverter's drifting. I suspect the real level was about (22dB). I plan to try 23 cm additional CW skeds with HB9BBD and PI9CAM. Back to 70 cm, I worked on JT65C UA3PTW (22dB) and PI9CAM (13dB), while I1NDP was (18dB). On 17 Nov I worked with JT65 G4YTL #23*. I copied K7XQ (29dB) on JT - but he didn't see me, and SD3F (M) on CW. During ARRL EME contest I spent my time mostly on 70 cm CW and heard OH2PO, OZ4MM (good signal) and possibly SM2CEW, but only received QRZs in response to my calls. After the contest I added WA4NJP on JT65 #24*. Ray had a perfect signal with only a 200 W PA.

PA3FXB: Jan jvmmap@bart.nl sends information on his Dec operation -- It was nice to see that the conditions on 23 cm EME were very good near the days of extreme perigee. I noted some record breaking signal reports on my all time high list. During Dec I had ~ 20 QSOs, but most thrilling was my JT65c QSO with EA3XU for initial #72. Benjamin is doing a great job with his 8 yagis. It was a difficult QSO as he was a maximum (31DB) with me and I was (28DB) at Benjamin's end. Also thrilling was that I could receive the signal from LZ1DX. Ned has only 4 yagis on 1296. Unfortunately Ned has some QRM, so he did not receive my signal. We tried for hours, but no QSO. It was very exciting to see such small signals! Another new one for me on JT65c was OK1DST #73. Lexa had a nice signal, but he was drifting rather badly. Because of drifting was linear and constant, I was able to compensate for drift with my RIT – this worked great. On CW I had a nice QSO with HB9HAL. He had a very good signal! My dish is again in its original state (3 m dia) with the temporary "collar" extension removed. My TX power is approximately 300 W at the feed. I also tried OE5JFL's EME beacon. It works very well. I played with it over the Internet and could hear the 100 W level strong, and sometimes hear the 10 W level. I could the 1 W level on my waterfall display! My thanks to Hannes.

PE1RDP: Arno arno.bollen@chello.nl send some very good news – I have solved my local noise (up to S9+40dB) problem! One of my neighbors had built a digital clock, which can be set by a remote control. The remote control works on 433 MHz. This part of the 70 cm band, the so called LPD (low power device) band is open in Europe for industrial and commercial use. The maximum power is 10 mW ERP and many popular devices operate there. Wireless thermometers, car door openers, keyboards and wireless mice, toys, Hi-Fi speakers and

headphones are some examples. So 433 is quite useless for amateur radio in Europe and maybe also in the rest of the world. The kit my neighbor built several years ago had a 433 receiver using a 100 mW transistor oscillator. This oscillator caused a lot of noise from 420 till far beyond 440 MHz and could be heard more than 1 mile away. The digital clock was only about 10 m from my 70 cm array. The neighbor let me modified his cloc0 and it is no longer a noise problem. My new solid state PA is almost ready. With this PA, it should be possible to work stations in CW.

PI9CAM: Dick (PA3DW) jvmmap@bart.nl writes -- During the second leg of the ARRL contest, PI9CAM was QRV on 70 and 23 cm as well as 2 m. We made 59 QSOs on 432 and 27 QSOs on 1296. On 23 cm, we made our first FM QSO via EME with DL0SHF. Next time we want to try ATV. Another highlight was a SSB QSO on 70 cm with WA4NJP. I have entered all QSOs into VQ/log, so I can calculate our final score and print QSL lables. Our QSLs are still not printed, but should be received soon. We have already received a dozen of direct QSLs.

PY1KK: Bruce (PY2BS) bruce@zirok.com ran some test on 70 cm using a 4 m dish with a patch linear pol feed and an IC-910H and was able to copy JT65B signals from K2UYH. A present he wants to improve his 70 cm setup and wants to focus on 23 cm for the present.

PY2MJ dish with linear patch feed – Guilherme is experimenting with a circular patch feed and would like to hear from others who have used such a feed.

RW3PX: Yuri RW3PX@yandex.ru brings us up to date on his very fine 23 cm CW results during the Nov EME contest. He QSO'd SP6JLW, RW3BP, OZ4MM, DF3RU, IK3COJ, DJ9YW, JA6AHB, DL0SHF, OK1DFC, G4CCH, RA3AQ, LA9NEA, VE6TA, OH2DG, K1JT, I5MPK, WA6PY, DL4MEA, HB9BBD, HB9GR, HB9SV, UT5JCW, ON7UN, SV3AAF, OK3RM, IK2MMB, IW2FZR, IQ4DF, F5FEN, IZ1BPN, K2DH, W4OP, OE9ERC, K5JL, F2TU and JA6CZD. Yuri is using on 23 cm a 4 m dish and 300 ~400 W output.

RW3WR: Yuri rw3wr@mail.ru is now active on 70 cm with 4 x 15 el yagis and 200 W on JT65B. During the EME contest he QSO'd DL7APV, PI9CAM and WA4NJP.

SM6FHZ: Ingolf ingolf.fhz@gmail.com is QRV again on EME –- Naturally, I found a lower level of activity in Dec than during the Nov contest weekend, but was still very content with my results. I had just a few smaller equipment failures this time. I was able to repaired or compensated for all. It is obvious that it takes some time for the rig to show all its weak points – hi. EME traffic is for sure very demanding on both the operator and equipment. I do wish I could foresee the weak points and make the repairs before the EME weekend. I was on from my moonrise on Saturday 13 Dec to moonset on Sunday 14 Dec with a few breaks for eating and sleeping. I also spent more than two hours repairing a 28 V power supply that the Az and El drive is running on. Without that power supply I can't even park the dish. I managed to work the following stations during this period: 1704 OK1KIR on my CQ, 1711 SP6JLW on my CQ, 1738 UR5LX on sked, 1745 F2TU, 1845 DF3RU, 1855 HB9IZ, 1935 DF3RU on SSB (he answered my CW CQ on SSB and I switched to SSB as well), 1957 JA4BLC, 2014 G4CCH, 2045 OH2DG, 2113 I5MPK, 2128 SV3AAF, 2150 LA9NEA, 0239 W5LUA, 0258 N2UO, 0308 WA6PY before our sked, 0335 WW2R, 0350 W9IIX, 0612 HB9HAL and 0705 HB9HAL on SSB. Getaways were at 1725 OZ6OL, 1920 OK1DFC, 0330 W4OP and 0634 PA3FXB. I was very happy to note that several of the stations I worked on random had 3 m antennas. This is not how I remember it from the mid 80's. It has sure moved forward a lot. It really warms me up in the dark cold Swedish winter. I also notice that the operating standards of the stations are very good. It is very nice to work EME under these conditions. I plan to be the moon in the Jan AW again. I hope to be able to build a more contemporary 23 cm preamp design than the one I am currently using.

SP7DCS: Chris' sp7dcs@wp.pl report for Dec EME -- I had very limited time and was able to get only for a few hours. All QSOs are in CW. On 432 I used my 4 x 25el yagi array with 400 W and QSO on 13 Dec 8J1AXA for initial #17 and a new DXCC, I1NDP and DL7APV. Heard were JA5NNS (called a long time, but got only QRZs), SP6JLW and SV3AAF. On 1296MHz I used my 3 m dish with 200 W at my feed RA3AQ feed and QSO'd on 13 Dec LA9NEA, SV3AAF and G4CCH, on 14 Dec G3LTF, OK1DFC, JA4BLC and DF3RU, and on 15 Dec UR5LX for initial #60 (on sked) and HB9HAL. I could not be on longer and stay for W/VE window.

SV3AAF: Petros sv3aaf@yahoo.com only had the chance to be on EME during the Dec AW on Saturday evening for his eastern window – I found low traffic on 432 and unfortunately completely forgot about 8J1AXA, so sorry guys. I didn't look for you before starting my CQs. I worked I1NDP (loud), JA5NNS, DL7APV (very loud) and SP6JLW. Conditions produced good signals at the peak with long deep QSB, moderate libration and some Faraday spread. Traffic was also relatively low on 1296 where I worked SM6FHZ, SP7DCS, JA4BLC, LA9NEA, GW3XYW, G4CCH and RW3PX. There were good signal levels with very little QSB and moderate libration.

UA9FAD: Victor rosmet@perm.raid.ru is now QRV on both 432 and 1296 EME. On 23 cm he is using a 1.2 m dish with 0.25 f/d and linear pol with 120 W at the feed. He has thus far completed 23 cm QSOs with OK1KIR, G4CCH and K2UYH on JT65c and possibly more.

UR5LX: Sergey ur5lx@uy0ll.ampr.org was active back in Nov during the EME contest. He worked on CW K1JT, SV3AAF, F5FEN, OE5JFL and ON4BCB to bring him to initial #82. He also QSO'd on JT65c PY2BS, K7XQ and RK3WWF.

VE2ZAZ: Bert ve2zaz@amsat.org (FN25bk) was QRV for the Dec AW on 70 cm -- I contacted 4 stations on JT65b: K2UYH (14DB/O), DL7APV (25DB/O), I1NDP (19DB/O) and WA4NJP (16DB/O). I also heard a few CW stations calling CQ and tried to work them but signals fluttered too much this time to copy CW at my end. My station consists of TS-790A (modified for separate TX and RX lines), 4 x 13 el DK7ZB yagi array (~20 dBd gain), AM-6155 PA converted to 432 with ~350 W on CW and ~225 W on JT65, 20dB Gain, < 0.3 dB NF ATF54143 HB LNA. I am looking for skeds with larger stations on CW or JT65b - see http://ve2zaz.net.

VE4SA: Shawn's ve4sa@rac.ca report on his Nov contest activity and standings on 23 cm – I was only able to operate for a relatively short period, but did hear a few signals. It was very cold (- 35 degs C) but clear. I now have worked a total of 25 initials as follows: DF3RU, DJ9YW, DL0SHF, F2TU, G3LTF, G4CCH, HB9GR, HB9Q, K1JT, K1RQG, K2UYH, K5GW, K5JL, K5S0, LA9NEA, OH2DG, OK1CA, OK1DFC, OZ4MM, OZ6OL, PI9CAM, RA3AQ, SM4DHN, W5LUA and WA6PY. [Unfortunately K2UYH and K1JT are the same station and only count as one initial].

VE6TA: Grant ve6ta@clearwave.ca reports on his *cold* operation -- Despite the -35 C temps, I managed to get on for the DUBUS 432 ATP. I found conditions generally good with deep and rapid QSB. When signals were up they were very strong. Unfortunately my polarity rotor was stuck in the vertical position and I had no opportunity to fine tune the polarization of calling stations. I worked K1RQG, I1NDP, WE2Y and UA6LGH. Stations heard were WA4NJP on SSB and K2UYH. I was called by a few stations that would be good copy except for the QSB and polarity rotor issues. I suspect DG1KJG called me several times and I apologize for not quite getting the call. Also I believe IK2RTI called. I will keep the 432 feed in for the next weeks, so let me know if you want to try a sked or repeat QSO. TNX for a great ATP, although let's put in a request for warmer WX next time.

W9IIX: Doug w9iix1@yahoo.com was QRV on 23 cm on 13/14 Dec, but had problems the first night with conditions and just could not copy anyone. Sometimes there were two or three calling at once and he could not separate them. Doug did the second night and worked a couple of new ones, DF3RU and SM6FHZ along with quite a few more.

WB2BYP: John wb2byp@ieee.org has moved to a new location and is trying to get organized at the new QTH. He still needs to move his dishes (10' and 28'). The 10' dish has a bit of damage. The 28' is in good shape. John will be working on a 23 cm driver (TH-328) and a YL-1050 PA during the winter.

WE2Y: John johnff1@ix.netcom.com was active during the NA 70 cm ATP on 14 Dec. He QSO'd K1RQG, I1NDP, VE6TA and K2UYH. There were 3 got-a-ways, UA6LGH, W8TXT and K0RZ.

YO2IS: Szigy's yo2is@wa7v.ampr.org thoughts are on improving his 23 cm system -- Having read about RW3BP's station improvements, I decided to experiment and learn more about my 23 cm septum feedhorns. My first horn is made from 3 x 205 mm sections with 10 mm thick Al wall bolted together and has two adjustments (tuning disks) for VSWR. My second, is a single section RW3AQ style horn with no adjustment made from 1.5 mm Al sheet was used, M4 x 10 brass bolts/nuts. I use an OE9PMJ type preamp and a good quality small coax relay mounted on the top of the feedhorns and connected by about 10 cm semi-rigid coax with N connector to the feed monopole and BNCs to and from the relay directly connecting to the preamp. Testing was done in my shack. For a noise source, I used my 2.4 GHz computer, and measured the RX audio output. At 2 m distance a lot of noise was received from the PC with no clear polarization. There was no significant difference between the two feedhorns, moving the tuning disk on the Rx side produced a deep drop in received signal when the disk was close to the monopole, and no other variation. I thus left the disk close to the back wall. Next I tried to readjust my preamps (MGF 1416 & MGF 1400, and 2 x FHX35lg in the second one) for the best signal/noise ratio when connected to the feeds. Advice and suggestions are appreciated. [Was the preamp adjustments the same for both feedhorns? I suggest you perform the same experiment with the feeds pointed out a window and optimize for the largest cold sked to ground noise ratio].

K2UYH: I a.katz@ieee.org had some successes and frustrations in Dec. I QSO on 23 cm on 6 Dec at 2100 LZ1DX (20DB/O) on JT65c for mixed initial #333* and mixed DXCC 66*. On 10 Dec on 70 cm I had a partial at 0200 EX3DXU (23DB/O) on JT65b, but on 11 Dec after nil results with at 0000 with OK1TEH on CW (Matej heard me at the end of our sked) and 0030 LU7FIA on JT65b, I did work at 0100 EA3EXU (26DB/O) on JT65b for mixed initial #753*. Back on 1296 on 12 Dec at 2300 nil from RA3IS on JT65c, but on 13 Dec, I worked at 0114 PY2MJ (27DB/O) on JT65c on random and at 0128 UA9FAD (21DB/13DB) #334* and DXCC 67*. I also tried CW, but never found Victor. His JT signal was audible and a CW QSO should have been possible. I was active on 70 cm on 13 Dec and QSO'd at 0244 VE2ZAZ (21DB/O) on JT65b, 0257 K3MF (20DB/O) on JT65b, and during the ATP on CW at 0349 UA6LGH (O/O), 0439 K1RQG (559/569), 0445 W8TXT (459/449), 0515 WE2Y (449/569) and 0522 N4GJV (559/569). I also tried several skeds on 432 with KG6DX and BX1AD on JT65b, all with nil results probably due to my 70 cm noise problem that prevents me from working weaker stations.

NETNOTES BY G4RGK: **AB5GU** is interested in EME. He has large single yagis with 1.5 kW on 70 cm and 100 W on 23 and 13 cm. Marty, Brahmangou@aol.com is available for on the horizon skeds. **LU7DZ** will be active on 432.020 on 3 Jan after 1930. **DK3WG** worked on 70 cm using JT65b in Nov ES3RF for mixed initial #447*. **VE3KRP** QSO'd HB9HAL, LA9NEA and W5LUA during the Dec AW on 1296. Eddie did hear his own SSB echoes for the first time. **W8TXT** worked 8J1AXA on 70 cm during the Dec AW. **W4OP** worked W5LUA and others on 23 cm during the AW. **WB7QBS** was on 70 cm looking for 8J1AXA but did not identify them. **WW2R** worked SM6FHZ for new one on 23 cm and a few other stations during the Dec AW. W4OP was loud. Dave did call W9IIX with no reply. **WA8RJF** attempted to QRV on 23 cm in Dec, but had a problem with the elevation actuator and never made any QSOs. **N9EMC** asks about using Xpol yagis on 432 for EME. Joe can be reached at jbh@db3broadband.com. [Contact SV1BTR]. **G4RGK** reports no activity during the Dec AW due to WX - terrible high winds and constant heavy rain. He will be away from the end of Dec to the middle of Jan and will thus not be on for the next AW as well. **W5LUA** worked SM6FHZ for a new one on 23 cm in Dec. Al also QSO'd K1RQG on 432 using his 4 x 21 el F9FT yagi array at 85' (up since 1978), 80' of 7/8" air line and a 1 dB NF preamp in the shack. **W4TJ** listened with his single yagi on 432 during the Dec AW for 8J1AXA, but heard nil. Bill did much better during the NA part of the ATP and copied many stations including K0RZ, I1NDP, K2UYH, K1RQG, DL7APV and others. **K5JL** tried to get on for the Dec AW, but still is having a receive problem. Jay is waiting for better WX to make repairs at the feed. **VE4MA** was on 23 cm 14 Dec listening, but did not work anyone. Barry heard his own echoes 6-10 dB out of noise and copied a lot of signals. He now has 500 W SSPA for 1296. **WA4NJP** is back in operation on 70 cm but is locked in vertical pol until he can make repairs to his dish feed. During the Dec AW was testing on SSB with good results. **W2UHI** had freezing rain during the Dec AW. Frank's dish was all iced up and he could not operate. **AL7RT** was QRV on 1296 on the 13 Dec, but not the 14th and missed most of the activity. **WA9KRT** now has a 500 W PA for 70 cm (from K4PKV). **PY5ZBU** plans to be much more active during 2009.

FOR SALE: **WA6KBL** has some Siemens TWT power supplies and TWTs for sale. He has some for X and C bands. He was told they were working when retired from service, but has not tested them. Complete schematics are available. He has some 6" dishes as well. Please contact Jeff at jpawlan@pawlan.com if interested. **N9JIM** reports that Siemens RW-1125D TWTs and PS giving 10 ~ 15 W on 10 GHz with -24 V to power them are available from OELdeals@aol.com for about $200. **K2UYH** is looking for good N type coaxial TR relays. **WA2ODO** has a new never used 1296 160 W Klitzing (W6PQL) PA for sale for $US445. He also has Astron 28 Vdc 33 A power supply to go with it for $US225 or $US600 for the Pair. **NS4C** is looking for a 1296 feed for a TVRO dish. Contact Dale, W4OP, with any information parinc1@verizon.net. **SM4IVE** has for sale an Ailtech 7380 Noise figure/gain meter with the service and operation manuals. No noise source. If interested contact Lars at sm4ive@telia.com. **VE6TA** is looking for 3.4 GHz 180 degree splitters.

GUEST EDITORIAL BY AA6EG, Jamesburg Moon Bounce Team: I learned from a friend in the JPL/Deep Space network (DSN) that a number of the smaller dishes (~30 m) are about to be phased out and possibly scrapped due to budget cuts. JPL/DSN has several primary sites in Australia, Spain and S. Cal. Each site has a mix of dishes. There are a couple of generations of dishes, approx 30 m and most stations have also a huge 70 m dish. This may be an opportunity for EME enthusiasts to collaborate with Universities to see if the surplus dishes (and their associated upkeep costs, non trivial) could be managed for University use, and for EME use. Some of the older DSN dishes have been given new life using this method. The Apple Valley, CA 30 m dish, a former JPL asset and now run privately by an organization called the Lewis Research Center. Another bunch of dishes are being decommissioned at Goonhilly in England. British Telecom was soliciting proposals for their reuse, else they were planning to demolish them. If someone contacted BT with a plan, perhaps they could adopt one or more of the dishes no longer needed by BT and put them to use on EME or another Science outreach project. Another example is the CAMRAS-run Dwingeloo Dish in Holland, whose website had a Internet ready SDR with digital files of the recent EME contest that a visitor can tune to hear the EME activity. Other organizations around the world have large dishes many of which are not used or underutilized. It might be worthwhile to investigate these dormant dishes to see if the could be re-engaged in moonbounce/science outreach work as I did at Jamesburg. The upkeep of such large dishes can be a problem. I learned that Jamesburg had a minimum bill of $US1500/month just in electricity, even when unused. Jamesburg has a ~ 1 megawatt capacity substation transformer on the premises with 13 kV primaries and 480 secondary that may be 99% percent efficient as to heat losses in the transformer, even when idle. If you do the numbers, the $1500 per month is in the ball park just for the 1% transformer magnetizing current when not even used. I wonder if there are among the EME community, Industrial Electric expertise, to see ways to maybe have a primary disconnect to the Main Transformer when the site is unmanned, lowering dormant electricity costs. Then, the cost of az el drive motors, for EME are non Trivial. Ours are very efficient and probably apply very low loads relative to their 20 HP capacity motors, each axis, but if they were using a high percentage of their capacity that could be 20-30 hp for hours a time, which adds up. I don't know yet the best solutions/sources for financing science outreach costs of such wonderful instruments, but it should be a worthwhile search to find solutions.

FINAL: First I want to wish everyone a very Happy New Year. I also want to apologize for the delay in completing this newsletter (NL). My goal was to have it sent out last weekend, but holiday activities, work responsibilities and other complication prevented me from achieving this end.

Last month many of the contest high scores arrived just after the NL was distributed electronically - (I revised the web version). It turned out that DL0SHF had captured the lead on 1296 CW with 102 x 43 for 438600 points, just ahead of K1RQG, who had one more QSO, but one less multiplier with 103x42 for 432,600 points. On 432 CW OH2PO took the lead with 70x30. DL7APV was close with 64x29.

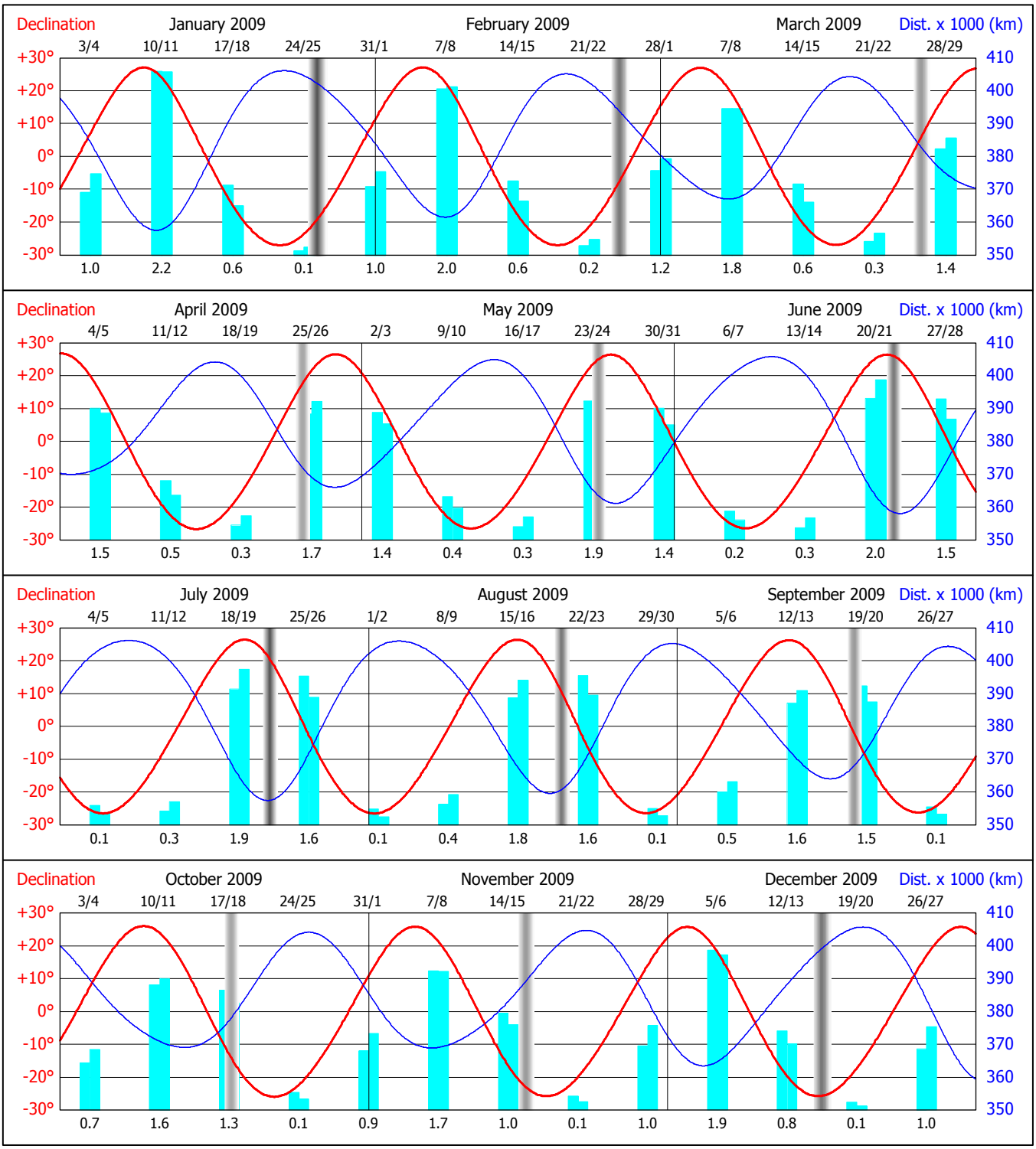
At the end of this NL is the are graphs of the 2009 monthly moon conditions prepared by F5SE and promised last time. I believe you will find them quite helpful. They clearly show why Jan AW should be on 10/11 Jan!

G4RGK reports that his initials lists updated for Dec 2008 are posted at http://www.zen70432.zen.co.uk/Initials/index.html.

OK1TEH continues to expand his excellent website on EME History. He recently added information on the first WAC on EME. This information can be found at http://www.ok2kkw.com/next/eme1976wac.htm. Matej's website is well worth a visit.

Please keep the new and tech stuff coming. 73 and the very best moon conditions, DX, health and happiness during the coming year. CU off of the moon! 73, Al – K2UYH

Moon Ephemeris Overview for the Year 2009, by Franck F5SE



- Vertical blue bars show the overall "quality" of each week-end for EME. The higher the bar, the "better" the week-end.
- Figures below bars show expected signal improvement, in dB, referred to apogee path loss, for Sundays at 00:00 UTC.
- Full scale span: 2.4 dB. Scale step: 0.4 dB per division. 0 dB level = Band path loss figure at apogee, as quoted below:
- 144 MHz: 252.8 dB, 432 MHz: 262.3 dB, 1296 MHz: 271.8 dB, 2.3 GHz: 276.9 dB, 3.5 GHz: 280.4 dB, 5.7 GHz: 284.8 dB,
- 10.4 GHz: 289.9 dB, 24 GHz: 297.2 dB, 47 GHz: 303.0 dB. Data computed for an apogee around 406500 km.
- To get the week-end path loss on a given band, subtract to band apogee figure the value printed under the week-end bar.
- The shading pattern below shows how close the Sun is to the Moon, at any time - the darker, the closer.
- Shading is only visible around New Moon date, appearing as a vertical gray bar.

Gray Scale calibration — Sun to Moon Distance, in degrees