

## 432 AND ABOVE EME NEWS

May 2022 VOL 52 #4-5

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**CONDITIONS:** The VK3UM Memorial REF-Dubus 1296 EME CW Contest is the big news this month. Conditions and activity were generally good. **OK2DL** had the top reported score with 70 QSOs 58 mults. Marek edged out OK1DFC with a score of 67 QSOs and 59 mults using his new offset dish. Scores were actually down a bit this year, probably due to a conflict with the IARU R1 Tropo Contest. Overall, the contest received high grades for a very pleasurable event. **Coming right up is the REF-Dubus 10 GHz and Up EME Contest weekend on 28/29 May. This will be followed only one weekend later on 4/5 June by the 13 cm Contest.** On 2/3 July will be the 6 cm Contest and 30/31 July the 9 cm Contest. See more info and rules at <http://www.marsport.org.uk/dubus/EMContest2022.pdf>.  
The next 70 cm CW Activity Time Period (ATP) is on 5 June 1100-1300 & 1900-2100.

**DXPEDITION ACTIVITY:** There was not much happening dxpedition wise in May. KB7Q operated from his home QTH to deliver MT on 432 to some needy stations – see Gene's report in this newsletter. Now; however, **HB9Q's Q-team has already arrived in Corsica** to provide TK/HB9CRQ on 23, 13, 6 and 3 cm. See Dan's update also in this NL. KA6U will be starting his phenomenal 43 State dxpedition on 1 June –see Peter's report. PA2CHR's surprise dxpedition discussed last month has been postponed to sometime next year.



23 cm EME beacon remains QRT – See ON0EME report

### REPORTS:

**DJ3JJ:** Andreas [dj3jj@gmx.net](mailto:dj3jj@gmx.net) was active in the 1296 CW Dubus Contest. With my relatively small 2.5 m station, I found that signal spreading was difficult. I recommend maintaining a good (or extra) spacing between repeated calls. High speed (>= 13 wpm) does not help either. I think there is less energy in every dot and dash compared to lower speed. I note that many small stations use (O) reports. An (O) report is still common for me if signals are weak. I easily QSO'd LZ2US, OK1CA and OK2DL at about 10 wpm. Surprising was that calling CQ with only 200 W at apogee brought me 3 calls plus one I could not get the complete callsign because of my 50 deg EL limit. I had no chance to operate in the NA window.

**DK3WG:** Jurg [dk3wg@darc.de](mailto:dk3wg@darc.de) reports on his May EME from (JO72gi) – I worked new stations since the beginning of May on 70 cm using JT65B F4FET/p, PA3FWV and GW4ZHI, and Using Q65-B NN3Y. On 1296, I added an initial using CW SP9FVD.

**F5KUG:** Jean-Louis (F6ABX) [f6abx@wanadoo.fr](mailto:f6abx@wanadoo.fr) reports on his radio club's participation in the REF-Dubus EME CW 1296 Contest -- We used a 3.6 m dish with 500 W at a septum horn feed. The first 11 QSO's were entirely made by F4WDI, who was listening to lunar signals for the first time! We QSO'd OK2DL, PA3DZL, OK1CA, OK1DFC, DG5CST, **DU3T for initial #151 and new DXCC**, I1NDP, G3LTF, CT1FGW #152, F2CT, OK1KIR, OK2ULQ, SP7DCS, DF3RU, HB9Q, W2BYP, IK2DDR, IK1FJI, VE6TA, K2UYH, SP6KBL, SM6FHZ, SP9VFD, F6ETI, IW2FZR, IK3MAC, G4CCH, K3WM #153, 9A5AA and WA9FWD for a total of 30x27; a little better than our 2020 score of 29 QSOs. The high positive Moon dec prevented any contacts from VK. Some pictures can be seen at: <https://twitter.com/f1jrv>

**G3LTF:** Peter [g3lft@btinternet.com](mailto:g3lft@btinternet.com) sent info on his Dubus-REF 23 cm CW results – I was active in the DUBUS-REF CW contest; our weather was very calm for a change and activity was good but a bit down on last year. I think having two 23 cm contests 4 weeks apart may have been part of the reason. I worked on 7 May VK5MC, KL6M, OK1DFC, OH1LRY, CT1FGW, SP7DCS, IK3MAC, 9A5AA, JF3HUC, IK2DDR, DU3T, OK2PE, SM6FHZ, JH1KRC, PA0PLY,

OK1YK, F2CT, I1NDP, IK1FJI, OK2DL, JA6AHB, OH2DG, F5KUG, SP6KBL, SK0CT, UA3PTW, F6ETI, IW2FZR, PA3DZL, DG5CST, WA9FWD, LZ2US, G4CCH, N8CQ, K2UYH, SP9VFD, W2BYP, DF3RU, WA6PY, VE6BGT, NQ7B, VE6TA, K3WM, VA7MM, WB8HRW for initial #524, OK1KIR, VK4AFL, SM7FWZ, OK1CA, SM5DGX, UA9FAD, SP3XBO, DJ3JJ, F5JWF, PE1LWT and K5DOG. I ended with a score of 56x50 including 13 from NA, 2 VKs and 3 JAs. I heard VK2JDS and SP7EXY in QSO but didn't find a CQ; otherwise, I worked everything I heard. I believe that activity on CW from NA was higher than for some time. Regarding the ARRL Microwave EME Contest weekends, my preference would be to have the first weekend for 6 and 9 cm and the second for 13 and 3 cm and above; but I'll go with whatever the majority decides.

**I1NDP:** Nando [i1ndp.nando@gmail.com](mailto:i1ndp.nando@gmail.com) writes his CW activity in the VK3UM Memorial/Dubus 23 cm Contest – I enjoyed all the CW QSOs; however, my participation was very limited mainly due to bad weather conditions. On Saturday we had a strong wind and could only start operation in the late afternoon, while on Sunday there was a storm and a power blackout at the end of a QSO with OK1DFC. I was sorry to need to QRT early with Zdenek and the contest. My final results were 59x52 for a total of 306,800 points. I am trying to get back on 70 cm. My array was damaged by the winds that broke my feed lines and put my array out of operation several years ago. I decided to restore the antenna. It was not easy but finally the yagis were made shining and ready for new adventures. Sadly, when tried to point it at the Sun to check the performance, I found many strong signals peaking in strange directions. It was not clear what was happening. I found the problem was coming from a nearby telephone installation (40 m away from my antenna) and coming from a 5G big box recently added. The whole 70 cm band is completely covered by a digital signal with about 15 MHz bandwidth starting at about 428 MHz. It is on 24x7! The signal seems to be radiated not by the antennas but from the whole structure. It is probably from an IF frequency not properly filtered. 432 was already full of undesired birdies, but I could not imagine how bad are the new comers.



**IK1FJI's photogenic 3.2 m dish – soon to be replaced with a 3.8 m dish**

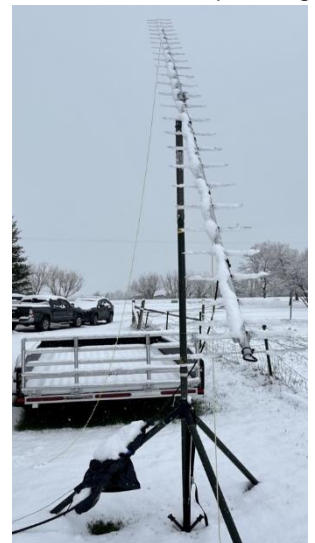
**IK1FJI:** Valter's [valter\\_dls@yahoo.it](mailto:valter_dls@yahoo.it) 23 cm report follows – In the 1296 EME Contest, I made 44 CW QSO's and 39 mults for 171,600 points. Initials were SP6KBL, W2BYP,

JF3HUC, SM6FHZ, K3WM, OK1YK and SP9VFD to bring me to #162. Last year, I worked 61 stations. Besides the Moon's apogee position there was also bad/very heavy libration very heavy. (Possibly something wrong with my RX as even strong signals had very high distortions and poor readability. In any case, it was a great weekend. I was QRV many hours, but not full time due family business. My station was a 3.2 m dish, septum feed with choke ring, TH327 1.3 kW @ feed and 0.27 dB NF LNA.

**KA6U:** Peter [petervh@cisco.com](mailto:petervh@cisco.com) will be starting his summer State/grid roving dxpedition in June -- I plan to visit up to 43 states this summer between 1 June and mid-Oct. I will be running 2 X 25HV yagis and 600 W on 70 cm EME; and on 23 cm EME a 2.4 m folding dish and 400 W. The focus for this trip is to help operators make progress/complete WAS on 222, 432 and 1296. If anyone needs specific States for these bands, please send an email to [petervanh143@gmail.com](mailto:petervanh143@gmail.com), and I will notify them directly before activity in the States they are interested in. I will be announcing and updating my plans on [ka6u.blogspot.com](http://ka6u.blogspot.com), on the MMonVHF site and on the moon-net mailer. [And if we find out in this NL]. (I will also have kW stations for 6 and 2 m. I will operate EME and MS on both these bands and 222). At some locations, I plan to run 70 and 23 cm EME simultaneously.

**KB7Q:** Gene [geneshea@gmail.com](mailto:geneshea@gmail.com) writes on his EME travel in May -- Over the weekend of 6-8 May, I decided to put 70 cm on EME as several folks needed MT for their WAS award quest. My station was a single 9 wl yagi, 450 W from a LDMOS SSPA, a very fine WD5AGO pre-amp, and an IC-9700 with GPS injection - a pretty small station for moonbounce. The weather started out very clear, but then the winds came followed by heavy wet snow. No matter, 25 stations were worked including one on CW. I hope this operation demonstrates that even a small station can be quite successful using Q65B on 432 EME. Yes - I did tip the yagi over and clear the snow off before operating!

Logged using Q65B unless noted were OK1KIR (17DB), DK4RC (19DB), DL1VPL (23DB), OT7K (20DB), DL7APV (12DB), PA2CHR (23DB), HB9Q (11DB), OH6UW (24 DB), UA3PTW (16DB), W2HRO (23DB), PA2V (19DB), PA3HDG (21DB), DL6SH (13DB), DL8FBD (24DB), W7JW (24DB), ES3RF (18DB), AA5C (27DB), K5DOG (22DB), DK3WG (16DB), SM7THS (21DB), PA2V (18DB), G4FUF (22DB), PA5Y (16DB), DL9KR using CW (539/549) and W5LUA (22DB).



**KB7Q - Spring time in the Rocky Mountains (Montana) on 6-8 May with 9 wl 70 cm yagi.**

**N1AV:** Jay [whereisjay@gmail.com](mailto:whereisjay@gmail.com) is working on his next expedition to Hawaii -- I am in the process of working out the details for going back to HI in the next 18 months; and bringing 1296 back as well as one other band. I was thinking of either 902 again, (since I have everything already packed for that band) or 2.3 GHz. I think everyone here who is on 902 is on 2300 as well? I will have rotor control this time and other improvements to severely reduce wind sway. I would use the same 2.4 m dish. On 902, I would have about 150-200 W. On 2304, I would use a Spectrain SSPA with 100-125 W on digital. Any opinion on 902 vs. 2304 for the second band in HI? I would either have 1 or 2 passes to dedicate to the band selected. I was thinking about 432; however, ND0B had mentioned he was going to be on 432 from HI by the end of this year.

**N5BF:** Courtney's [courtney.duncan.n5bf@gmail.com](mailto:courtney.duncan.n5bf@gmail.com) 1296 CW Contest operation was cut short -- Due to a big retirement party for my wife (WD5EHM) and I on Saturday 7 May, my moon time was very limited. I did get on at the start (Friday evening LT) to work DU3T (559/529); and on Saturday afternoon I answered KL6M's CQ (579/559) and multiple tailenders including K2UYH (559/559), OK2DL (579/579), G4CCH (579/559) and CT1FGW (569/559); all in one half hour. My total operating time for the whole DUBUS event was 45 minutes for a total of 6x6 in the log. CT1FGW is my mixed initial #280\* and a new country on CW.



**N5BF's tree shaded EME Antenna**

**OK1CA:** Franta [fr.strihavka@seznam.cz](mailto:fr.strihavka@seznam.cz) sends his May report -- During the Dubus EME Contest on 23 cm, I was only able to operate on Saturday for the first half of my moon-window; and then made 34 QSOs. On Sunday, I was QRV for the entire window. I ended with a total of 60 QSOs. There was good activity from EU. NA activity was seemed weaker on Sunday. CW initials were K3WM #395 and N0CTR #396. Outside the Contest, I made using Q65C 9 QSOs for digital initials with JS6UJS, PA100THALES (PA0BAT), JH7OPT, W2HRO, F4DWB and GI4DOH to bring me to {#135}. Subregional contests/activities conflicted the contest this year; and therefore, some stations in EU were not QRV. For comparison, I made 73 QSOs last year and 78 QSOs in 2020.

**OK1DFC:** Zdenek [ok1dfc@seznam.cz](mailto:ok1dfc@seznam.cz) sends the following May Dubus Contest info -- All went as planned this time in the contest. I was active during both lunar orbits over the weekend. The Moon was above the horizon during the day; so, I once again avoided the sleep deprivation that is plaguing me more and more as I get older. The only thing, I didn't manage to finish before the contest was the SSPA mechanics with 2xW6PQL modules, intended for installation in the dish. While the SSPA is finished and giving the performance it should, I just didn't get all the brackets and jumpers done in time. So, I was stuck with my good old SSPA by SM4DHN. It was in a container for the contest with 20 m of 1/2" superflex coax to the feed. The added 4 dB of attenuation does its job and so there was only 400 W at the feed of my 8 m offset dish. Still, there were a number of interesting contacts and even 5 initials on 1296 CW. Everything worked as expected and all the time! I accumulated 67 QSOs and 59 mults. Only in second orbit were NA stations active with only a minimal number participating. I missed DJ7FJ, G4YTL, IK6IEW, N5BF and WA6PY. They did not respond to my CQ calls and I could not find them anywhere to call. I worked 9A5AA, CT1FGW, DF2VJ for initial #468, DF3RU, DG5CST, DJ3JJ, DL7UDA, DU3T, F2CT, F5HRY, F5JWF, F5KUG, F6ETI, G3LTF, G4CCH, HB9BCD, HB9Q, I1NDP, IK1FJI, IK2DDR, IK3COJ, IK3MAC, IW2FZR, JA6AHB, JA6XED, JA8ERE, JF3HUC, JH1KRC, K2UYH, K3WM #465, KL6M, LZ2US, N8CQ, NQ7B, OH1LRY, OH2DG, OK1CA, OK1KIR, OK1YK, OK2DL, OK2PE, OK2ULQ, PA0PLY, PA3DZL, PE1LWT, RA3EME, SK0CT, SM5DGX, SM6FHZ, SM7FWZ, SP3XBO, SP6KBL, SP7DCS, SP7EXY, SP9VFD #464, SQ7DQX, UA3PTW, UA9FAD, VA7MM, VE6BGT, VE6TA, VK2JDS, VK4AFL, VK5MC, W2BYP #466, WA9FWD and WB8HRW #467.

**OK1IL:** Ivan [ivankait@netscape.net](mailto:ivankait@netscape.net) reports on his 1296 operation since Nov -- I worked the following initials: K5QE, W5GLD, UA5Y, SP3YDE, DK1KW, HS0ZOP, KA6U, G6HEF, N2END, N0CTR, KD5CHG, K6VHF, K3WM, KU4XO, K9MU, SP7EXY, W5AFY, F9ZG, OK1USW, TO1Q, DJ7FJ and DM9LSB. New states for WAS were W5GLD OK #34, KD5CHG CT #35, KU4XO SC #36, KB7Q CO #37, KB7Q UT #38 and N2END NY #39. HS0ZOP was a new DXCC 69. A big disappointment was not working N1V in KH6. I wasn't able to QSO Jay in spite of my greatest effort. After this experience, I made a close check of my 23 cm system after 6 years of operation. The dish was 2 degs away from the Moon in spite of calibration with the Sun not long time before. I wasn't able to reach full output power of the PA. The coax cable (H155) between shack and PA had some cracks after 6 years in the open and humidity increased the loss. Now it is replaced by Airflex 7 and a full 800 W is available again. Also my G4DDK preamp needed the frontend MGF4919 replaced. In the WSJT Echo mode, the result is very promising, and my Sun noise is also satisfactory with taking into account the crazy SFI values in the last few days. I am now ready for KA6U's roving trip.

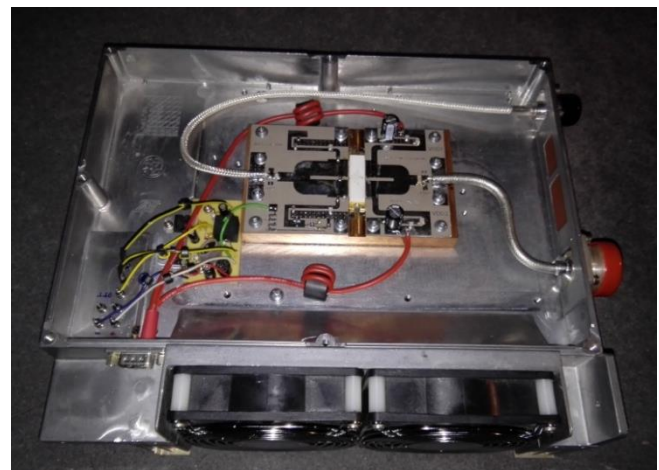
**OK1KIR:** Vlada [vlada.masek@volny.cz](mailto:vlada.masek@volny.cz) and Tonda send their latest EME report for May -- On Friday, 6 May on 70

cm, we worked with Q65B at 1826 4X1AJ (30DB/20DB), 1850 W8PAT (23DB/20DB) for digital initial {#316}, KB7Q (16DB/17DB) {#317}, 2154 N9HF (15DB/19DB) {#318}, K7KQA (15DB/21DB) {#319} and N9XG (9DB/12DB) {#320}. Using CW, we worked only K5DOG at 2232 (O/O) for initial #405. During the 23 cm part of the DUBUS Contest our main focus was searching new stations. We worked on 7 May using CW UA3PTW, OH2DG, OK2DL, OK1CA, PA3DZL, RA3EME, IK3COJ, OH1RLY, VK4AFL, KL6M, IK3MAC, SP9VFD for initial #503, VK5MC, IK2DDR, OK2ULQ, JF3HUC, OK1DFC, CT1FGW, PA0PLY, JA6AHB, DJ3JJ, OK2PE, SP6KBL, DU3T, SP7DCS, G4CCH, SP7EXY, SK0CT, IK1FJI, F5KUG, K3MW #504, K2UYH and SM5DGX; and on 8 May VK2JDS, G3LTF and F2CT for a total of 36 stations and 32 mults. With Q65C we worked on 7 May at 1223 JS6UJS (7DB/4DB) for digital initial {#469} from PL24, 1354 PA100THALES (7DB/4DB) and 1805 K3WM (1DB/2DB) {#470}; and on 8 May at 1102 DM9LSB (19DB/20DB) {#471}, 1225 JH7OPT (19DB/18DB) and 1246 repeat JS6USJ (6DB/4DB) for CW request but got a "sri no CW" response. We were also decoded JH7BAY (21DB) whom was without TX capability. During 3 cm tests on 12 May with IU0SAT with a 20 m dish, we didn't find their signal. Later we learned that they were using opposite (LHCP) sense of polarization for TX. However, despite only a 3 dB loss with our LP, no signal trace was found. On 12 May using Q65D we did work at 1506 IK6CAK (12DB/8DB), 1520 VK7ZBX (11DB/6DB), 1809 PA0PLY (10DB/7DB) for digital initial {#223} and 1823 PA100THALES (3DB/4DB), and using CW at 1553 DB6NT (579/579). The next day, 13 May while testing with IU0SAT, we heard their CQ (17DB) from 1613 to 1621 but CWN'R; and worked at 1736 F6DRO (12DB/17DB) {# 224} with H pol, and 1805 IK0IXO heard us (7DB) but we found nothing from his announced only 4 W into a 1.25 m offset dish.

**OK2DL:** Marek [ok2dl@seznam.cz](mailto:ok2dl@seznam.cz) wrote on his blog <ok2dl.eu> about his activity during the Dubus 1296 weekend -- After a year's wait, a pleasant CW contest. The moon was above the horizon during the day, coming out sometime in the morning and setting after midnight. Saturday's window began quite calmly, but after a few hours it was clear that it would not be possible to overcome last year's score. There were fewer stations; apparently it was a combination of EME and the tropo contest. On Sunday, activity was even poorer. There were no initials and a lot of stations that normally run were absent. This time at least, everything worked perfectly. A total of 70 contacts with 58 mults were achieved. I'm looking forward to seeing other big-guns' results. [TNX for the translation to OK1TEH.]

**OK2PE:** Karel [ok2pe@kbb.cz](mailto:ok2pe@kbb.cz) sent a post about his participation in Dubus 23 cm CW contest -- My contest actually started long time before the weekend. After the ARI contest, I broke my SSPA. For two years I had

been waiting for the Dubus contest; last year I had a seized AZ bearing in my rotator. I seemed out of business for the contest again. Luckily, I received help from OK2DL. Marek offered me a spare power transistor from his stock. Thank to him I was able to be QRV in the contest – my sincere thanks! On Saturday I visited the local Microwave meeting in Frenstat, where I bought Arctic Silver conductive paste and started the PA repair. After putting the PA into the cooling box, I connected everything up and checked the bias currents and SWR. On Sunday, I tested the repaired PA with an EME QSO with Marek. Signals were excellent. We also teased on SSB EME and it worked despite the weak signals. On Saturday, 7 May I started to contest and logged my first contact OK2DL at 1155. After that, there were more stations until 1857 with HB9Q. On Sunday, I worked SP6KBL, LZ2US and the icing on the cake OK1DFC. I logged 14 QSOs, it's not much from my QTH in a deep valley, but it wasn't that bad due to lower activity in EU due to the tropo contest. I'm happy for great contest.



**OK2PE's repaired 23 cm PA**

**OK2ULQ:** Peter OK2ULQ [ok2ulq@seznam.cz](mailto:ok2ulq@seznam.cz) wrote on his blog -- This year the Dubus 23 cm EME Contest conflicted with the popular EU IARU R1 2nd subregional contest. I decided that on Saturday I would focus EME and on Sunday on the tropo contest on 47 and 122 GHz. For a long time, I waited for the moon to appear above the roof of the neighboring building. My first impression was that the conditions were not very good. In the end, they were not that bad. I worked 27 stations and had initials with SP9VFD and W2BYP.

**PA2CHR:** Chris [post@pa2chr.nl](mailto:post@pa2chr.nl) writes that his planned dxpedition (see Chris' report in the last NL) is at least temporarily on hold -- I made the difficult decision to postpone my activity from a new DXCC location for several reasons: 1) Our apartment rental that we had already booked was canceled; and it is the only apartment in this

DXCC. 2) We tried to get a camper without luck. 3) Another option was to hire a van and operate with generator, but a generator was unavailable. 4) And even if we could get a generator, locating enough gasoline to be on for a week did not seem possible. And 5) we were not sure we could find a place to park for a longer period of time. The good news is that my local contact, who is at the DXCC location a few times a year, will be there in June. He will look for a suitable location. We now hope to get there in Sept or Nov.

**SM6FHZ:** Ingolf [ingolf.fhz@gmail.com](mailto:ingolf.fhz@gmail.com) shares his thoughts on the 1296 Dubus EME weekend – There was good activity and nice conditions in the first moonpass of the 1296 CW contest. I heard a number of new callsigns from presumably smaller stations that were working the *big-guns*. Unfortunately, I did not hear these stations call CQ or in any other way get the possibility to call them. It has been said before, but it can be said again: I strongly urge all smaller stations to call CQ a little higher up in the band (i.e., above .030) where there is less interference. Everyone does not need to be between .010 and .020. Leave this part for the stronger stations to call and use the less populated part slightly higher in the band. The probability for QSOs and ease of a QSO is much better for the smaller stations if QRM is reduced. Also, be persistent in your CQ-calling. The Mid-sized stations will find you. (I assume all have a SDR panadapter and a very good view of the band and also the weaker signals). They may need some more time to get your callsign correct but if all are very persistent and adapt to your CW speed their chances are good. I am sure there would be a lot more QSOs if the smaller stations used this strategy more.

**SP9VFD:** Raf [rgrygorow@gmail.com](mailto:rgrygorow@gmail.com) sends a short report about his last EME activity -- I was QRV on 7/8 May in the VK3UM Memorial - REF Dubus EME CW 1296 Contest. I had 56 QSO's and 52 mults with WA9FWD, HB9BCD, SM7FWZ, N8CQ, SM6FHZ, IK3MAC, DF2VJ, F5HRY, SP3XBO, IK3COJ, F5JWF, OH2DG, F5KUG, DJ3JJ, JF3HUC, JA6AHB, PA0PLY, JH1KRC, OK1YK, F6ETI, IK1FJI, LZ2US, VE6TA, VA7MM, G3LTF, SM5DGX, K3WM, NQ7B, WA6PY, I1NDP, W2BYP, K2UYH, G4CCH, IK2DDR, DL7UDA, SP7EXY, DK3WG, OH1LRY, OK2ULQ, PA3DZL, CT1FGW, DF3RU, UA9FAD, DG5CST, OK1DFC, SP7DCS, IW2FZR, OK1CA, F2CT, DU3T, OK2DL, 9A5AA, KL6M, SP6KBL, UA3PTW and OK1KIR. I was active during both passes, but unfortunately not full time because of family errands. Also, before the contest, I did some rig modifications in my shack and during both passes did not have the assistance of an SDR waterfall. During the contest, I used a portable Yaesu FT-818 as an IF on 50 MHz to only monitored my AF spectrum as help for tuning of my echoes. All the wonderful QSOs were appreciated. My plan is to add 13 cm to my 6.4 m HB EME dish. I hope to be active on 13 cm EME for the 4/5 June REF/Dubus Contest.

**TK/HB9CRQ:** Dan (HB9Q) [dan@hb9q.ch](mailto:dan@hb9q.ch) updates us that all is on schedule for his imminent dxpedition – We have now arrived, set up and ready to operate. Our only issue is poor Internet service. We traveled by car and ferry to

Corsica, and will be here for 10 days, doing some sightseeing/vacation and of course EME on 23, 13, 6 and 3 cm; sorry, but 9 cm is not allocated in TK. The team members are again HB9COG, HB9CRQ (me) and Sue my YL. We will start on 27 May (Friday) 5760.100 Q65D TK/HB9CRQ 1st CFOM from 0230 to 1230. 28 May (Saturday) 10368.150 Q65D TK/HB9CRQ 1st CFOM from 0300 to 1300. 10450.150 1st (on request only, please send e-mail to [dan@hb9q.ch](mailto:dan@hb9q.ch)); QSY will be announced on HB9Q 10xxx logger. 29 May (Sunday) 1296.100 Q65C TK/HB9CRQ 1st RX on own echo from 0315 to 1330. 31 May (Tuesday), 2320.100 Q65C TK/HB9CRQ 1st RX on own echo from 0430 to 1500. 2304.100 (during W/VE window, QSY will be announced on HB9Q 23xx logger). 2301.990 and 2400.100 (on request only by e-mail. CW: As always, we will work CW on all bands. However, only with big-enough stations and after the pile-up on Q65 is worked. **See more details in the last (April) NL.**

**UR5LX:** Sergey [ur5lx@ukr.net](mailto:ur5lx@ukr.net) [in contact with OK1TEH] writes – My family and I are relatively safe. My son opened a PayPal system. If someone has the opportunity to help my family or anyone else in Ukraine, help can be sent to [10gh@ukr.net](mailto:10gh@ukr.net). Many thanks to those who have already helped! Your help is very important both economically and morally. If you would like to help other friends from Ukraine, you can send it through the Pay Pal system. Please indicate to whom the help is for. You can send Callsign, email address or phone number in Ukraine. I forward the email PayPal addresses of our HAM friends who are in a difficult situation: **UY0LL** [uy0ll@yahoo.com](mailto:uy0ll@yahoo.com), **UT3LK** [uy0ll@yahoo.com](mailto:uy0ll@yahoo.com), **UY7LO** x-UY5OE [uy0ll@yahoo.com](mailto:uy0ll@yahoo.com), **UR5LAK** via [uy0ll@yahoo.com](mailto:uy0ll@yahoo.com), **UX3LV** [10gh@ukr.net](mailto:10gh@ukr.net), **UR3VKC** [krivosheyaira378@gmail.com](mailto:krivosheyaira378@gmail.com), **UT7LK** [uy0ll@yahoo.com](mailto:uy0ll@yahoo.com), and **UT4LA** [uy0ll@yahoo.com](mailto:uy0ll@yahoo.com). **Thank you again for your support!**

**VK4AFL:** Trevor [tbenton@bigpond.net.au](mailto:tbenton@bigpond.net.au) was delighted with the activity over the Dubus 1296 Contest weekend – I was very pleased to find more than usual NA activity plus two JAs appeared in my window as well. The best part was the many very strong signals! (The Ukraine war continues to be a serious worry. Where and how it will end is anybody's guess at this point. We know what happened to amateur radio during WW2. My heart goes out to the poor people and their destroyed country).

**VP8EME:** Kuzma [vp8eme@ktv.co.fk](mailto:vp8eme@ktv.co.fk) is planning to be more active on 432 EME – I am ready now for 432 EME only from a new location in GD08me with way better local QRM conditions. I'm only there on weekends from Friday evening to Monday early morning and operation is on a weather permitting basis with manual antenna control for now. Operating equipment is a single long 25 el yagi, 300W HPA, LNA and IC9700 with gpsdo. In the future I plan to set up for 1296 and possibly other bands.

**W2BYP:** John [storyavenue@hotmail.com](mailto:storyavenue@hotmail.com) had a big signal during the Dubus 23 cm Contest – My 1296 activity netted on 7 May VE6TA, K3WM, KL6M, K2UYH, WA9WFD, VA7MM, NQ7B, OK2DL, OH1LRY, CT1FGW, IK2DDR,

SM6FHZ, I1NDP, UA3PTW, DF3RU, OK2ULQ, F5KUG, OH2DG, DL7UDA, IK1FJI, HB9Q, SP9VFD, PA3DZL, G4CCH, OK1DFC, SM5DGX, SP7DCS, N8CQ, G3LTF, WA6PY, VE6BGT, 9A5AA and IK3MAC all random CW. I very much enjoy this event and ended with a score of 33x32. I am still working the bugs out of the tracking accuracy on my 1.8 m offset dish for 3 cm, and hope to experiment with it more this summer.

**WA3RGQ:** Don [donhawbaker@comcast.net](mailto:donhawbaker@comcast.net) writes that he has not been doing a lot of operating since the last ARRL EME Contest weekend -- I have been busy with mechanical details. You would think that getting a rotator to track the moon would not be that hard, but I am trying to do it with a 3 m dish on 5 and 10 GHz. So, it's check all the mechanical alignments, then calibrate, then test by tracking the Sun. It has been an ongoing project. I did have several contacts on 1296, but again it was harder than it should have been. My power amp slumps a lot. I have already sent it back to the factory once. In addition to the 1296 contacts, I had my first contacts on 5760 with HB9Q and W5LUA. I also had a contact with VK7ZBX in Tasmania on 10 GHz. It was challenging as the window was short and the elevations were low. To further complicate matters, it was raining at both ends. But, it's in the log book. During a spare moment, I modified my TS-2000X for GPS lock. Future work involves more tracking tests. I am still working on a 3 m perforated dish that I brought down to FL when I moved from PA last summer. I thought it would be good on 10 GHz, but initial tests tell me my 1.5 m solid dish is better. So, I have more testing to do. I want to indicate my strong support of breaking the next ARRL MW EME Contest up into individual or groups of bands, so that more people will be active on fewer bands and increase the probability of contacts.

**K2UYH:** I (Al) [alkatz@tcnj.edu](mailto:alkatz@tcnj.edu) do not know where the time disappeared to, but I see in my log that I did not make any EME QSOs between the ARI Contest and the VK3UM Memorial/REF-Dubus 1296 EME weekend. I enjoyed the contest greatly. I have fun in the mixed mode contests, but there is something special about an EME CW contest particularly when there is enough activity to keep things lively much of the time, as there is on 1296. There is no question in my mind that 23 cm is the band for CW EME! I was QRV for most of the contest with NU2E also operating part of the time with me. We worked starting at 0000 on 7 May WA9FWD (569/559), W2BYP (569/569), VE6TA (569/579), VA7MM (559/579), KL6M (579/579), K3WM (569/579), N6OVP (559/559), NQ7B (559/559), JA6AHB (559/559), DU3T (569/569), VK5MC (569/559), 1812 OK2DL (589/599), OK1DFC (589/569), 1832 G4CCH (569/579), 1835 SP7DCS (579/599), 1843 CT1FGW (559/569), I1NDP (559/589), OH2DG (559/579), IK3MAC (559/579), UA3PTW (559/589), DF3RU (559/589), OK2ULQ, (559/579), 9A5AA (559/559), IK1FJI (559/569), OH1LRY (559/579), PA3DZL (559/579), SP6KBL (449/559), 1939 IK2DDR (559/569), SM6FHZ (559/579), SP9VFD (579/579), HB9BCD (559/579), WA6PY

(569/569), F2CT (559/579), HB9Q (579/579), LZ2US (579/589), SM5DGX (559/599), G3LTF (569/579), N5BF (559/579), VE6BGT (569/579), WB8HRW (559/569), OK1KIR (579/579) and PA0PLY (559/529); and on 8 May JH1KRC (569/579), JF3HUC (569/559), VK3AFL (559/559), JA6ERE (559/559), JA6XED (559/569), F6ETI (559/579), OK1CA (589/579), SM7FWZ (569/579), N8CQ (559/579), SP7EXY (559/5769), IW2FZR (559/579), F5HRY (559/529), K5DOG (579/579) and F5JWF (569/599) for a total of 57x46, which was a little lower than last year, but still satisfying. If all goes well, I plan to be QRV for the 3 cm Dubus weekend at the end of May, the TK dxpedition and the other contests.

**NET/CHAT/LOGGER NEWS:** **SM6CKU** has a new email address [sm6cku@jockert.se](mailto:sm6cku@jockert.se). **CX2SC** can now fairly quickly switch between 6 and 3 cm EME. Ric can work both bands on the same day. He can also work 1296. **N4BAA** is setting up for 1296 EME with a 10' dish, but has lots of questions and would like to talk to others on 23 cm. You can reach Jose at [jose-castillo@verizon.net](mailto:jose-castillo@verizon.net). **OZ4MM** had no EME activity the last 2 months due either weather and additional workload. He was disappointed to miss the ARI and his favorite DUBUS 23 cm CW Contest. Stig hopes to be more active during the summer. **IUOSAT** has a 20 m Cassegrain dish that he can use on 10368.200 with a 16 W PA and 1.2 dB NF LNA. Dario can be QRV on Q65D and SSB. He is part of the Amsat Assoc. of Italy and can be reached at [segreteria@amsat.it](mailto:segreteria@amsat.it).

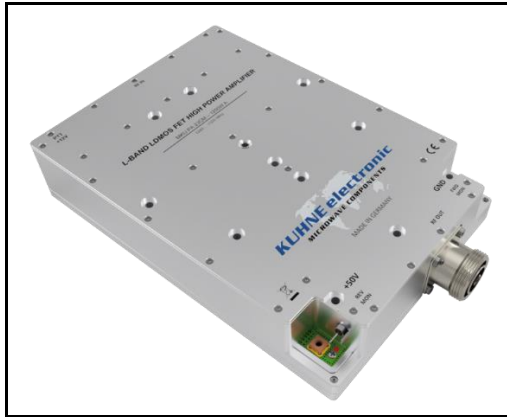
**HW CORNER:** Czech EME&MW meeting 2022 – Zdenek OK1DFC put at his web presentations from the April Czech EME and Microwave meeting. Files including English version can be seen at:

<https://www.vhf.cz/soubory/category/17-eme-mw-seminar-2022>

<https://www.vhf.cz/soubory/category/17-eme-mw-seminar-2022?download=52:outdooreng>

**FOR SALE:** **DL1YMK** is looking for 7/16 DIN 90° angle coupler m/f. If you have something available email Michael at [sa6bun@gmail.com](mailto:sa6bun@gmail.com). **PA3DZL** has for sale on behalf of our club 3 very nice HPAs for 6 m, 2 m and 70 cm. All 3 are tube PAs. The 70 cm HPA runs 1.5 kW PEP with a GS35b. The others even more! All are heavy, but shipping is possible. For pictures, detailed data and price info, please email Jac at [pa3dzl@icloud.com](mailto:pa3dzl@icloud.com). **PA5Y** is looking for a Dow Key 402A Failsafe relay with N types and a 12 V actuator (or similar relay with the same specs) - power > 900 W, isolation > 80 dB and loss < 0.15 dB all at 1.3 GHz. If have something contact Conrad at [g0ruz@g0ruz.com](mailto:g0ruz@g0ruz.com). **OK1TEH** keep selling his cheap 3 cm OK1FPC transverters for serious DX hams (not QO100) for EU290 per unit. See [https://ok2kkw.com/next/ok1fpc\\_10g.pdf](https://ok2kkw.com/next/ok1fpc_10g.pdf) for more info. First pieces have already been shipped. If you need 3 m solid dish for 10/24 GHz EME, Matej has still one for pick up. Contact Matej [ok1tehlist@seznam.cz](mailto:ok1tehlist@seznam.cz) for both. **Kuhne** is selling a new 23 cm 1.2 kW SSPA. This big PA is LDMOS based and needs 30 W drive and 50 VDC. It has aluminum and copper (nickel plated) housing and priced at EU3,175. Kuhne has also for sale WK 22-16 Water Heatsink with dimension perfectly fits to this SSPA. It is suitable for water

pH 6.5-8.5 with anti-corrosion agent and other fluids like Glycol/H<sub>2</sub>O, de-ionized water, oil, for EU349. They also a 50 W LDMOS driver using 28 V LDMOS and delivering 50 W with 3 W input power for EU475.



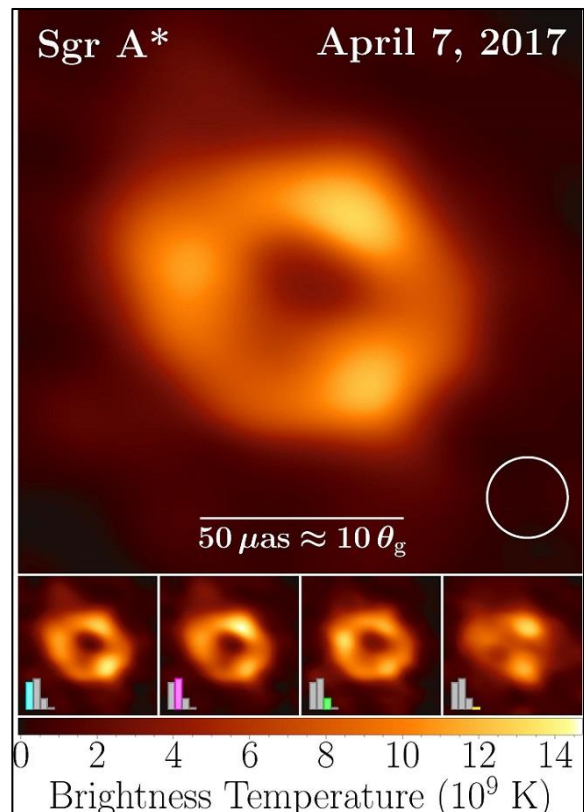
Kune new 1.2 kW 1296 SSPA

**Radio Astronomy Corner written by OK1TEH:**  
Astronomers Reveal First Image of the Sagittarius A\* - Black Hole at the Heart of Our Galaxy and close look to one of the strongest radio source in Milky Way.



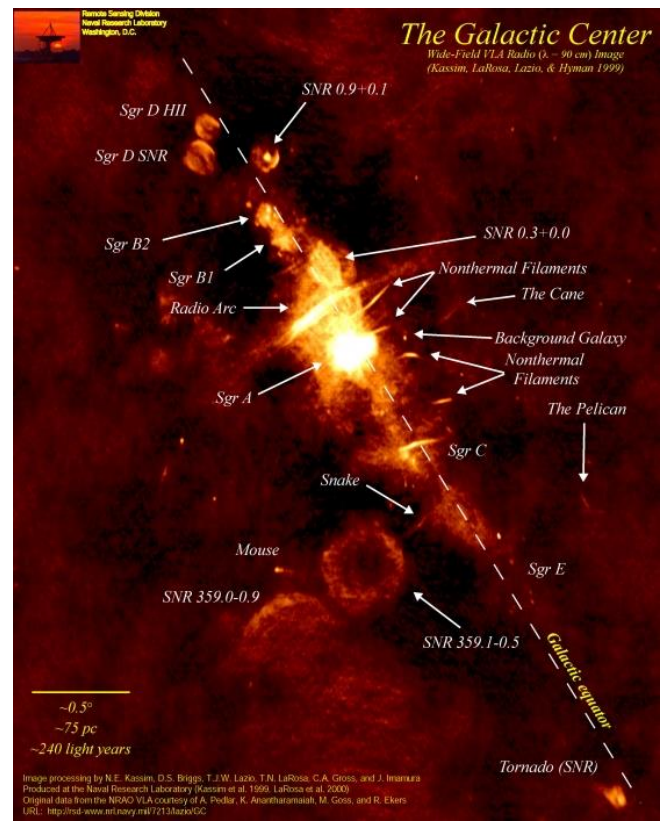
90 years ago [1932] Karl Jansky was sitting at his laboratory and thinking about the strange radio source which was coming on 20.5 MHz from the constellation of Sagittarius, which was thanks to Harlow Shapley already recognized as center of Milky Way. However, astronomers were unable to make a direct view because stardust was hiding this radio source completely. In the 50's and early 60's radio astronomers considered that the center of Milky Way is full of hot plasma. However, later observations showed that Sagittarius A actually consists of several overlapping sub-components; a bright and very compact component, Sgr A\*, was discovered in Feb 1974, by astronomers Bruce Balick and Robert Brown using the baseline interferometer of the NRAO. The name Sgr A\* was

coined by Brown in a 1982 paper because the radio source was "exciting", and excited states of atoms are denoted with asterisks. Since the 1980s, it has been evident that the central component of Sgr A\* is likely a black hole. In 1994, infrared and submillimeter spectroscopy studies by a Berkeley team involving Nobel Laureate Charles H. Townes and future Nobel Prize winner Reinhard Genzel showed that the mass of Sgr A\* was tightly concentrated and of the order 3 million Suns. Indirect evidence was strong, but astronomers wanted to know it for sure. On 12 May 2022, a press conference was held simultaneously around the world to show the first image of a supermassive black hole at the center of our Galaxy. The results presented provided crucial evidence that this object is indeed a black hole. They also provide important insights into the workings of these cosmic giants, which are thought to reside in the cores of most galaxies. The image was produced by the global science team of the 'Event Horizon Telescope Collaboration', based on data taken by the global network of radio telescopes associated with the EHT. For years, scientists have been tracking stars orbiting an invisible, compact and very massive body at the center of our Galaxy. Based on these observations, they have concluded that the object, called Sagittarius A\*, is likely to be a black hole. The present image provides a long-awaited view that is the first direct visual evidence of the correctness of this conjecture. Because the black hole is completely dark, we can't see it directly. But the glowing gas around it reveals unmistakable signs of its presence: a dark central region known as the black hole's shadow and a bright ring around it. The image below shows rays of light bending in the strong gravitational field of the black hole, which is 4 million times more massive than the Sun.



"We were surprised at how well the observed ring size agrees with the predictions of Einstein's general theory of relativity," says Geoffrey Bower (Institute of Astronomy and Astrophysics, Academia Sinica, Taipei), EHT project scientist. "These unprecedented observations have greatly improved our understanding of the processes taking place at the very center of our Galaxy, and provide new insights into how giant black holes interact with their surroundings." Since the black hole is located 27,000 light-years from Earth, it is about the same angular size in the sky as a donut on the surface of the Moon. To image it, scientists created the powerful EHT *supertelelescope*, which linked eight existing radio telescopes across the planet. The result is a unique virtual telescope with a diameter comparable to Earth. The EHT tracked the Sagittarius A\* object for several nights during 2017, collecting data for many hours in a manner similar to taking very long exposure photographs. In addition to other facilities, the EHT line-up included the ALMA (Atacama Large Millimeter/submillimeter Array) observatory and the APEX (Atacama Pathfinder Experiment) telescope operating in the Atacama Desert in Chile, which are co-owned and co-operated by ESO representing its member states from Europe. However, other European scientific institutions are also involved in the EHT project with their own instruments: the IRAM 30m radio telescope in Spain and, since 2018, the NOEMA (NOthern Extended Millimeter Array) in France. The supercomputer that was used to combine the data obtained by the EHT is based at the Max Planck Institute for Radio Astronomy in Germany. Europe has also contributed to the funding of the EHT consortium project through grants from the European Research Council and the Max Planck Society in Germany. "It is amazing that ESO has played such an important role over the past many years in unlocking the mysteries of black holes and, in particular, the Sgr A\* object," says Xavier Barcons, ESO Director-General. "ESO has contributed to the results of the EHT not only through observations with ALMA and APEX, but also in the past - through its other observatories in Chile - through a series of partial breakthroughs in the centre of the Galaxy." This success of the EHT project follows the first image of a black hole published in 2019, located at the centre of the galaxy M87, which scientists now refer to as M87\*. The two objects are very similar, despite the fact that the black hole at the centre of our Galaxy is more than 1000 times smaller and less massive than M87\*. "Here we have two different types of galaxy and two black holes with very different masses, yet they are surprisingly similar near the edge," notes Professor Sera Markoff (Co-Chair of the EHT Science Council; University of Amsterdam, The Netherlands). "This means that, when viewed up close, general relativity governs their behaviour and the differences observed at larger distances must be due to the different properties of the matter surrounding the black holes." However, achieving this result was considerably more difficult than in the case of M87\*, despite the fact that the Sgr A\* object is much closer to us. EHT team scientist Chi-kwan Chan (Steward Observatory; Department of Astronomy and Data Science Institute of the University of Arizona, USA) explains, "The gas near the black holes, both in the core of M87 and in the case of Sgr A\*, is moving at

the same speed - almost the speed of light. But while in the case of M87\* it takes days to weeks to complete one revolution, in the much smaller Sgr A\* it takes barely minutes. This means that the brightness and distribution of gas around Sgr A\* changed very quickly during the EHT observations - it was a bit like taking a sharp photo of a puppy chasing its own tail." [Sagittarius A\* location in sky is at an estimated distance:  $25900 \pm 1400$  light-years. Equatorial coordinates of Sgr A\* (J2000.0) are  $\alpha = 17^{\text{h}}45^{\text{m}}40.0409^{\text{s}}$   $\delta = -29^{\circ}00'28.118''$ . It is easily observable with EME equipment, but for European latitudes, remains low on the horizon (maximum  $22^{\circ}$  for  $39^{\circ}$  north and does not rise for latitude higher than  $61^{\circ}$  north). Apart from the Sun, the Sagittarius group (Sgr A\*, Sgr A East and Sgr A Ouest) is the most powerful radio source in the sky.



See <https://eventhorizontelescope.org/blog/astronomers-reveal-first-image-black-hole-heart-our-galaxy> and F5SE's presentation at EME 2014.

### **OK1TEH asks what should the Radio Astronomy (RA) Corner concentrate on?**

**N1NDP** says -- RA activity, which took much more time than the Moon in the last few years was really very fascinating. Unfortunately, I reached the end of my limits not because of my technical tools, but because of the status of bands, where RFI grown to more than an unimaginable level. I started on 23 cm because of its lower interference. Recently I spent lot of time and effort to put my 70 cm array back in order only to find terrible interference that is much worse than I had been earlier. My suggestion to new



comers is to consider starting with the H line, as it does not require a big antenna. Only a good receiver at 1400 MHz - (not difficult today with SDRs) is needed. The VK3UM Calculator program is still an excellent utility for an estimation of the chances for success. The most fascinating for amateurs is the detection of pulsars. The reception of the stronger ones such as B0329+54 is achievable with a relatively small antenna on the 70 cm band plus a digital receiver, and software to record the data. In addition, at least a little knowledge of what to do off line with processing the data to achieve detection is necessary. The explanation of the procedure should be interesting also to EMEers as it has much in common with the secrets of WSJT communication. I did my first pulsar detection on 23 cm in 2014, (first one as an amateur on that band to my knowledge), when I knew very little about pulsars. On 70 cm it's much easier.

**DL7APV** writes -- I believe the number of EMEers who do also do RA is low. Everyone who is more interested looks into the science papers you get on the Internet. After receiving around 100 pulsars on 432, I have the same problem as Nando, what now? Getting deeper needs a lot of theoretical background and will not interest everyone. A highlight would be a problem where we as EMEers can help the scientists, but I am sure our equipment (gain, bandwidth, exact timestamp, etc.) is not good enough.

**IONAA** responds -- I started with EME, but my main interest shifted toward radioastronomy. I enjoyed developing software and hunting for Pulsars. I learned many things and now the learning curve is not growing so fast anymore. Bernd and Nando are asking "Now what?" Some new Citizen scientific discoveries would be fantastic, but maybe is out of our possibilities for lack of precision equipment. On this I agree with Bernd, unfortunately. But who knows; maybe we there is some chance of FRB detection. I added FRB 20201124A to Murmur (pulsar software). This could be an interesting topic to discuss and analyze in more depth. Also, the detection of very weak objects (e.g., 3C273) could offer a good chance to tune up our systems? This would be another interesting topic. Moon noise is also pretty intriguing. I tried to develop an algorithm to predict this noise, but I found difficult to match with my data. OH masers are definitely possible to detect with our systems. I am looking forward to hearing others comments!

**K5SO** notes -- One recent exception to the generally accepted conclusion that amateur radio astronomers are not able to contribute usefully to scientific observations. Namely, that is the monitoring results of Steve Olney (founder of the Neutron Star Group forum) in which he detected and reported the most recent glitch of the Vela pulsar (J0835-4510) using very modest equipment before any professional facility did so: <https://sites.google.com/view/hawkrao/pulsar-observations>. As you may be aware, the Vela pulsar is known to exhibit occasional changes in its rotational period, the reasons for which are apparently not well understood. This lack of understanding makes Vela an interesting target for observations for professional radio astronomers and amateur radio astronomers alike. The fact

that Vela is the strongest pulsar to detect in our sky makes it a relatively easy target for amateur radio astronomers to detect and monitor, if the radio telescope is located suitably south enough, ideally located in the southern hemisphere. For me in New Mexico Vela rises only fifteen degrees or so above the horizon at the best of times so Vela is not an ideal target for me to observe but Steve is located in Australia where Vela often passes directly overhead for him or nearly so. That geometry results in Vela observations being straightforward for Steve even when using a fixed-direction drift-scan arrangement for his antenna system. Even though Vela observations are not ideal for northern hemisphere radio telescopes, as is the case for me, Vela can be quite detectable for some northern-hemisphere locations. Examples are my modest detection results for Vela pulsar detection entries 14a,b at [https://linkprotect.cudasvc.com/url?a=http%3a%2f%2fk5s\\_o.com%2fpulsars-detected%2fpulsars\\_detected\\_2.html.&c=E,1,QID8WmQ3gnCVDiWfUQqSxluHco9xYx\\_fYAmrZ7a2ogGR5R\\_uFRA1sl6Tv-M73yuSqC3fiY2ynbwRKLCPFUPBcqazg\\_ktzHOA6iXZUveA33ZVRReHAesU,&typo=1](https://linkprotect.cudasvc.com/url?a=http%3a%2f%2fk5s_o.com%2fpulsars-detected%2fpulsars_detected_2.html.&c=E,1,QID8WmQ3gnCVDiWfUQqSxluHco9xYx_fYAmrZ7a2ogGR5R_uFRA1sl6Tv-M73yuSqC3fiY2ynbwRKLCPFUPBcqazg_ktzHOA6iXZUveA33ZVRReHAesU,&typo=1). I am always keen to learn of possibilities for amateur radio astronomy projects that might yield new information but they seem to be scarce. Nevertheless it is sometimes fun to try to observe some of the not-so-easily detected signals from space. Recently I have been detecting some of the emissions from various spacecraft at 8.4 GHz with the hope of possibly decoding some of them. To date the signal strengths have been too low to decode using my modest radio telescope; see, for example, the last pages of volume VI of the real-time documentation in the 8-GHz section of [https://linkprotect.cudasvc.com/url?a=https%3a%2f%2fk5so.com&c=E,1,K0BUMjCE0UnRVTFkt9TYSkDLp8Te69p7B8jiv8Cgbdal8ePhH0jhrvbkq1JjalI9WPwNSt\\_6d9Wbejxbzi1MKILZbwgHUg\\_yDrLWSbsf9r3vwhH25TBVnyh8vQ,&typo=1](https://linkprotect.cudasvc.com/url?a=https%3a%2f%2fk5so.com&c=E,1,K0BUMjCE0UnRVTFkt9TYSkDLp8Te69p7B8jiv8Cgbdal8ePhH0jhrvbkq1JjalI9WPwNSt_6d9Wbejxbzi1MKILZbwgHUg_yDrLWSbsf9r3vwhH25TBVnyh8vQ,&typo=1) website. It seems doubtful that I will ever be able to actually decode the emissions from such spacecraft but it has been fun and educational to attempt to do so, except perhaps during the initial launch phases when the spacecraft are leaving Earth. I suppose I will be better served to focus future efforts on a different project at a lower frequency. It's always fun to give new projects a try in any case.

**K2UYH** observes – One topic not mentioned is the Search for Extraterrestrial Intelligence (SETI). The SETI League is an amateur group involved in this area of RA. It provides some interesting technical challenges and is certainly a great topic for discussion.

**K1JT** writes - I'm pleased that some of the most knowledgeable EME enthusiasts are also interested in using their amateur antennas and receivers for radio astronomical observations. Our hobby definitely includes a wealth of fascinating sidelines for the enterprising! I consider pulsars the most interesting targets for amateur radio astronomy. Perhaps I am biased, having spent more than half a century studying them; but, among other things, the predictable and periodic nature of their signals makes them conclusively distinguishable from all kinds of radio

interference. Some Fast Radio Bursts (FRBs) are strong enough to be detectable with larger amateur EME antennas. These signals are broad-band and bear the recognizable signature of  $1/f^2$  dispersive delays. However, they are almost always one-off events, wholly unpredictable, and very difficult to distinguish reliably from interference. Quasars, active radio galaxies, supernova remnants, and of course the Sun are easily strong enough to detect with modest amateur equipment. I did this 60 years ago, using a pair of 10-element Yagis and a vacuum-tube receiver at 136 MHz. See the attached paper -- a summary of my undergraduate senior thesis -- for details. It's far easier to detect astronomical radio sources of these types today, if your location is quiet enough. Organizing your system as an interferometer with two separated antennas helps immensely, as it gives the received astronomical signal a recognizable signature, the period of interferometric fringes. Again, see the attached paper. Anyone with a dish usable for 23 cm EME can rather modify the system for detection and study of the 21 cm hydrogen line at 1420 MHz. Here, the detectable signal has a narrow bandwidth and can be distinguished from other noise sources by its recognizable spectrum. You can study how the spectrum changes when your antenna looks down different spiral arms of our Galaxy. Alas, I do not see any very attractive candidates for truly productive Citizen Science in radio astronomy. There is a huge gap between research-quality radio astronomy facilities and what any of us can build and maintain. And few (if any) of us live in a Radio Quiet Zone.

**FINAL:** We sadly must report on the loss of another early EME op. K2CBA became an SK on 2 May at the age of 91. Jud was involved in early W1FJZ/KP4 and KP4BPZ EME tests on 2 m and 70 cm contacts and experiments, as well as 220 EME in the 70s. He had a 60' Kennedy dish that he was never able to get mounted. He did remain QRV until the last few years with a 28' Kennedy that is still up. A true pioneer and friend. He will be greatly missed. [His obituary (Paul Snyder) may be found in the Troy, NY - The Record <legacy.com>. TNX to W2BYP for this info].

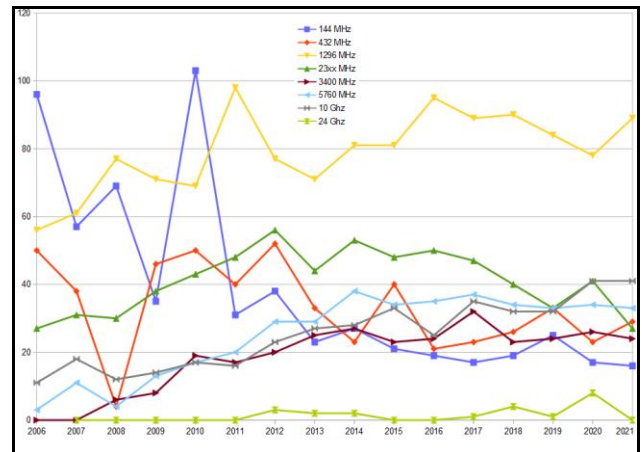


► **BIG NEWS:** The ARRL Contest Advisory Committee has approved adding an additional weekend to the MW (2.3 GHz and Up) part of the EME Contest. They proposed adding a weekend in the month preceding the first MW weekend of the existing contest with consideration for the

best conditions. Your suggestions over the past few years have had an impact. The staff at ARRL has requested feedback and comments from the EME operator community. Please send your comments K1DS at [rick1ds@hotmail.com](mailto:rick1ds@hotmail.com). (TNX to Rick for sending this info. He notes that he is only the messenger!)

► **EME Conference 2022 Prague is on!** Full registration and other necessary info is on the website at <https://www.eme2020.cz>. The date of the conference is definitely 12-14 Aug. To date there are 130 registered conference participants. Regarding accommodation: we had a meeting with the operations department of Top Hotel PRAHA (the conference hotel), where we clarified all the downloadable form on the page. When ordering, please quote the password "EME2020". If you are unsure, you can contact the accommodation department directly by phone +420 - 267284260 or by email [revenue@tophotel.cz](mailto:revenue@tophotel.cz). The restored. We will keep you updated on any changes or details as we are able to confirm with our service providers. We look forward to seeing you there. Zdenek - OK1DFC and EME Conference 2022 Prague team. last date for booking this form is 15 July. If you are interested the payment gateway for GoPay has been has been restored. We will keep you updated on any changes or details as we are able to confirm with our service providers. We look forward to seeing you there. Zdenek - OK1DFC and EME Conference 2022 Prague team.

► In this NL we have been discussing, which bands are best for CW operation. The following graph shows that the #1 CW band is 23 cm with consistently the highest CW activity. Note also the second highest band was 3 cm in 2021. It took over the 2<sup>nd</sup> place from 13 cm, which can also be an excellent band for CW EME.



**Number of EME stations available in Dubus CW EME contest on 2m and above between years 2006 - 2021**

► There are 3 contests coming up in little more than a month and a major dxpedition! That should be enough to keep most of us busy! Granted, all the contests are for the microwave bands. Have you considered trying one of them – even with your tropo gear. You might be surprised. We hope to QSO many of you in the up-coming two months. The 3 cm contest tends to be the next most popular after

1296. Even if you do not operate CW, there is also considerable digital activity during the Dubus contest weekends. Please take care and stay well. [we experience

mild Covid since the last NL]. **73, AI – K2UYH and Matej – OK1TEH**

**Remembering the GJ/F6KSX Dxpediton to the Isle of Jersey on 3 July 1991.** Operation was on both 432 and 144. We have included the 432 pictures here. The complete story can be found in the Aug 1991 NL archived at <http://www.nitehawk.com/rasmit/em70cm.html> by W6SZ.

## **GJ/F6KSX**

Assemblage des antennes

(Antennas assembling)

Operators

F5HRY, F1EHN, F6CTW & F6EZV (photographer)



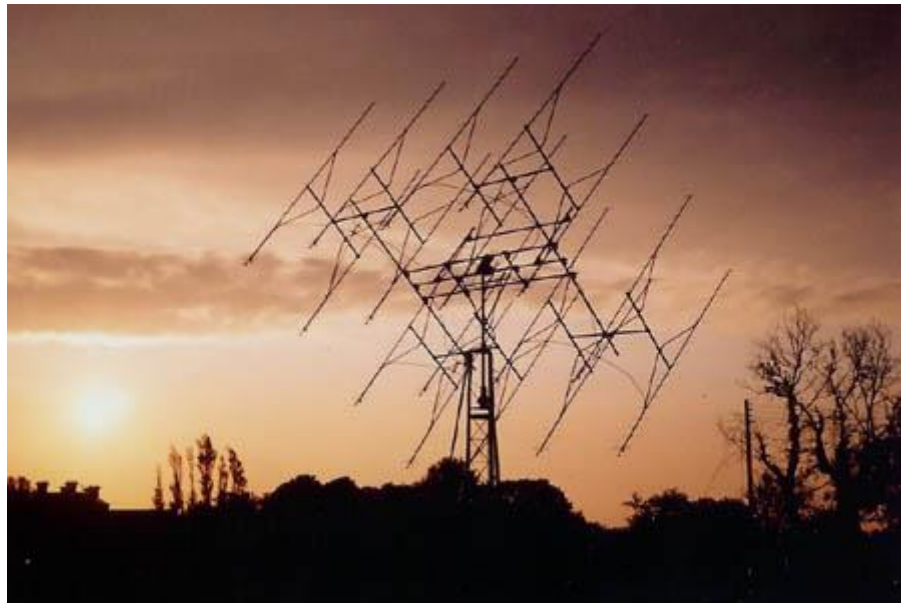
**432 MHz**

**16\*21 elts**

800W, 0.3dB NF

Great signals

69 inits



## **EME Station**

TS440s + transverter

**F1EHN automatic  
tracking**

**1st version (DOS)**

PC286 laptop

