

## 432 AND ABOVE EME NEWS JUNE 2002 VOL 30 #7

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THE NL WEB VERSION IS PRODUCED BY W6/PA0ZN AND AVAILABLE AT [<http://www.nitehawk.com/rasmit/em70cm.html>](http://www.nitehawk.com/rasmit/em70cm.html)

**CONDITIONS:** The Italian contest generated some extra EME activity during the May skeds weekend (SW), but activity was down because of the Dayton Hamvention that attracts amateurs and EMEers from around the world. The big news this month is W2WD's dpxpedition to Nebraska.

**NEB 432 DXPEDITION:** The W2WD/0 dpxpedition is on. Warren will be operating during the weekend of 15/16 June from Bill's [k9rz@radiks.net](mailto:k9rz@radiks.net) QTH in Neb. If you have not done so already contact Joe, K1RQG via the 20 m net or e-mail [K1rqg@aol.com](mailto:k1rqg@aol.com) for skeds. Warren will always transmit on 432.030 during the 1st 2.5 min sequence and listen for sked stations on 432.030. He will also call CQ on 432.030 and listen for random calls from 432.030 to 432.040 unless otherwise advised. He will be listening 10 kHz (.040) high during skeds for random calls and will switch over to random, if a skeds station is not heard. He will be using a portable 20' dish with pol rotation and about 500 W from a 2 x 4CX300 PA. Murphy has been around. Warren's 4CX300s started flashing over, but he has received additional tubes from a number of sources and this problem appears under control. He has also been contacted by the 144 EMEers and will try to operate on 2 m as well. He says there seems to be more interest in Neb by the 144 gang. They are even sending him an antenna. [What about 1296? Unfortunately it was too late by the time Warren decided to consider additional bands. I think there is something here to be learned for the future!]

**DF4PV:** Günter [df4pv@yahoo.de](mailto:df4pv@yahoo.de) now has a terrific signal on 23 cm. He is QRV with a new 10 m dish – see his web page at <http://www.geocities.com/df4pv>. He will make several improvements in the next few weeks. The transmission line will be replaced by a 7/8" Cellflex line. He is also searching for a long version of an IMU circular feed.



**DF4PV's new 10 m Dish with 23 cm feed**

**DL0EF:** Manfred (PA3GLB/DL5FAB) sends results of his group's 10 GHz EME Activity during the Eur contest -- The crew of DL0EF <http://www.astropailer.de> was active on 10 GHz moon bounce during the DUBUS Contest on 20/21 April from the Astropailer Stockert, located near Bad Muenstereifel (vicinity of Cologne) in JO30im. We were using our 10 m dish, polar mount and a 20 W transverter system. Moon noise was around 3 dB. We

installed a magnetic polarizer unit, which proved valuable for large spatial offsets. We also replaced a modified satellite LNB with a DB6NT LNA, which improved the receive path. Increase in the ratio moon noise to colds-sky could not be observed anymore due to the big dish size. The activity started as planned, however, we run into problems with the antenna drive at around 2100 on the 20th, at the time of our sked with W6HD, which did not allow us to use the required slow gear to track the moon. Faultfinding revealed a problem with one of the motor drive couplings. The repair would require a major mechanical intervention, which was not possible during this weekend. We tried to continue operation by advancing the antenna in short but coarse steps and let the moon catch-up. The polar mount proved very valuable, as we need only to steer in GHA. QSO'd were on 20 April at 1622 I5PPE (O/449), 1642 G4NNS (O/O), 1658 F6CSX (439/O), 1734 OH2AXH (529/529) and 2205 WA7CJO (559/O). Also heard but not worked due to the antenna drive problems were W6YFC, CT1DMK, F2TU and K6RE. We want to thank everybody for the QSOs and we will be back in the air later in the year. Our plans are to increase our TX power by around 10 dB and further improve the control of the dish.

**DL4MUP:** Dave [dave.powis@planet-interkom.de](mailto:dave.powis@planet-interkom.de) was active on 23 cm in the Eur EME Contest – I QSO on 20 April HB9Q and G4CCH, and on 21 April F2TU for initial #35, HB9BBD, OZ6OL, F6KHM #36, OK1CA #37, HB9SV, OE9XXI, SM3AKW, F6CGJ, G3LTF, OZ4MM, OE9ERC, JA6AHB #38, ZS6AXT #39, K5JL, W4OP #40 and KA0Y. Just before the contest I replaced my preamp with a cavity design from K2AH. It proved difficult to get the NF better than my BV preamp, but finally with help from HB9BBD and DL4MEA a NF of 0.31 dB was achieved. Since the contest, I have added in skeds IK3COJ and SM6CKU to bring me to #42.

**DL80BU:** Juergen [juergen.kauffer@t-online.de](mailto:juergen.kauffer@t-online.de) in JO42xi has completed a dish for 23 cm EME and will be QRV during the June SW. He is measuring about 13-14 dB of sun noise and has already worked DJ9YW (O/M) and G4CCH (559/529) on random. He has 100 W at the feed, but is restrictions to AZ from 90-236 degs and EL from 10-50 degs.

**DL9KR:** Jan sends TNX to IS0/DJ5MN for initial #770 and DXCC #84 on 432. Jan says Bernhard had a nice (549) signal with 1 yagi and 500 W. Jan also worked VK3FMD #771 (2 yagis and 200 W) in May.

**FR5DN:** Phil [fr5dn@oceanes.fr](mailto:fr5dn@oceanes.fr) (LG78qs) is now interested in 23 cm EME -- I have a 1.8 m solid dish, f/d about 0.28, and wonder if it is suitable for some EME work? I know that it's a small size, but it's hard to use a larger dish, as I would have to take all down and secured, as soon as there is a cyclone closed to the island. I have had to do this a number of times with my 2 m and 70 cm antennas. It's not fun, hi. For 1296, I think it's really marginal, so I'd like to know which band would be the best? [You're right about 23 cm. Some QSOs could be made with a high power PA. Unfortunately a 0.28 f/d is also very difficult to properly illuminate on any band. If you want to use this dish, 10 GHz is probably your best bet. For 23 cm I would suggest construction of a small stress dish with a mesh covering. A dish similar to N2UO's shown in the last NL would be a good choice. A 2.5 m dish would put you in business.] What about JT44 on EME, can that be a solution for marginal or QRP stations in the future? [There is growing interest in JT44 and should definitely help marginal stations. I'd still use a different antenna on 23 cm – even a long yagi.]

**G3LTF:** Peter [100633.1656@compuserve.com](mailto:100633.1656@compuserve.com) reasonable conditions but little activity in May – On 432 on 18 May I worked DF3RU, F2TU, UA3PTW, K9SLQ for initial #358 and IN3AGI. I think he is also an initial but I'm not certain if he may have been a guest operator. He had a good signal. On 1296 I QSO'd on 18 May IOUGB, ZS6AXT, IK2MMB, JA6AHB, IK3COJ, G4CCH and W2UHI, and on 19 May on 13 cm JA4BLC (crossband to 2424) and F2TU

(2320/2304). I heard and called ZS6AXT and SM3AKW, who is now very loud! I now have my new low backlash gear train, and the moon following system is working FB. I reckon to be within about 0.5 degree of the moon, which makes a big difference, especially on 13 cm. My next job is to re-cover the center 4 m's of the dish and trim its profile in preparation for operation on the higher bands. I'm hoping very much to work W2WD in Neb, which will leave only KY and WY for WAS!

**G4DZU:** Doug [doug.parker@btinternet.com](mailto:doug.parker@btinternet.com) has problems back in April -- Despite spending a day checking out the station for the DUBUS contest, I was plagued with Murphy. I had problems for most of the session with my AZ readout and low output power. Even after all of that I still had an enjoyable time with some outstanding signals. HB9BBD was hitting S7 over noise in 1 kHz bandwidth. I worked 8 stations with 6 multipliers. My station is a 10' Andrews dish on an AZ/EL mount with a VK3UM controller, VE4MA feed/DJ9BV air hybrid, WD5AGO preamp, TX YD1336 cavity with only 300 W out (but when drive is ok 500 W).

**I4TTZ:** Vico (I4ZAU) [lodzauli@tin.it](mailto:lodzauli@tin.it) reports that his group was active on 10 GHz again during the May SW -- We worked on 18 May at 1503 IW4BTJ (519/52), 1531 I5PPE (O/O) and 2025 I4CHY (52/52) for 1<sup>st</sup> Italian two way SSB, and on 19 May at 1532 F2TU (O/O). Our station consisted of a 7 m Cassegrain dish, 60 W TX, 1 dB NF LNA in JN54vj (Bagnara di Romagna, Italy). The crew was I4BER, I4QIC, I4TMA, IW4BYB, IW4APQ, IZ4BEH and I4ZAU (ex I6ZAU). We plan to be QRV again for the June SW, and on 24 GHz next year.

**K4EME:** Cowles [candrus@rica.net](mailto:candrus@rica.net) suffered a lightning hit in April that took out a lot of his equipment -- The azimuth rotor is dead along with my FT-736R and tracking computer. It appears that my 70 cm PA was unharmed. I had good grounds and surge protection on the antenna system. The strike appears to have come in on the phone lines. My bell box is in sad shape. I am in the process of getting things fixed, so I hope not to be down for long. I will let you know when I will be ready again for EME skeds. The good news is that I have acquired a 6.1 m solid aluminum dish.

**K7XQ:** Jeff [k7xq@elite.net](mailto:k7xq@elite.net) CM97qi ran skeds on both 432 and 1296 with SM2CEW during the May SW. He heard nil in both, nor any random activity. He uses on 432 2 x 9 w1 yagis and 300 W, and on 1296 a 3.3 m dish and 100 W.

**N2UO:** Marc has finished the surface of his 10' stress dish, and almost has everything else is ready for EME operation. The auto track is working and is getting 14 dB of sun noise. He hopes to be on 23 cm after a couple more days of work with low power (about 50 W at the feed) as he still needs to get his high power PA finished..

**OK1CA:** Franta [ok1ca@ges.cz](mailto:ok1ca@ges.cz) is preparing equipment for 9 cm EME -- I have a 3 m dish with linear feed (vert or hor pol), FT736R and TRX with 15 W at the feed and a ATF36077 W5LUA LNA. My sun noise is 15.4 dB (SF162) and my moon noise is 0.5 dB. I have heard own echoes (M). I have a frequency problem, as the OK ham allocation is 3400 to 3402 MHz, but I can listen in the 3456-3458 MHz band. I tried a sked with W5LUA on 24 May, but I had a problem with my T/R relay. My rig is now ok and I am interested in skeds on 9 cm.

**PA3DZL:** Jac [Jac.de.Bruvn@12move.nl](mailto:Jac.de.Bruvn@12move.nl) in JO21hm is now QRV on 13 cm EME (TX 2320). He can also RX on 2304 and 2424. Equipment is 2.50 m dish with VE4MA feed with built-in circulator, 30 W at the feed and 0.6dB NF. Jac is interested in skeds.

**S59DCD:** Rajko and Sil [s54xray@volja.net](mailto:s54xray@volja.net) says -- "Punk is not dead" and S59DCD also is not, hi, just a little sleepy for a while. After our 1st successful 13 cm QSO with OE9XXI last Oct, we rested until now. In the May and June activity weekends S59DCD will be QRV on 13 cm with our 6 m dish and about 70 W for anyone who needs S5 on 13 cm. Skeds are welcome -- see my new e-mail address above. Otherwise we'll see you in Prague.

**VK3FMD:** Charlie [ibnkarim@bigpond.com](mailto:ibnkarim@bigpond.com) in QF22mc is trying to arrange for some 70 cm EME skeds -- I am a small station with 21.6 dBi antenna gain and 200 W, but no elevation control (yet!) I have had success on 2 m EME with the bigger stations and the EME bug has bitten and I would now like to try 70 cm. [There is a big advantage to getting off the horizon, even with a fixed tilt on 432. This is because of the much lower skynoise.]

**W2UHI:** Frank as usual was QRV on 23 cm in May. He worked ZS6AXT, IK3COJ, G3LTF, G4CCH, W7BBM, DF4PV, IK2MMB, OZ4MM, F2TU and

HB9BCD for initial #157 - all with good signals. He says his system is working well, but won't be active during the June SW due to family commitments.

**W1ILP:** Wilt [n0ipl@webtv.net](mailto:n0ipl@webtv.net) in DN62uu is working on 70 and 23 cm EME and updates his status -- My station on 70 cm is basically operational. It consists of 6 x 22 el "FO" yagis, .5 dB NF MGF1302 LNA, 80' of 7/8" line and an FT847 driving a single 3CX800u7 to 450 W. A GS35B PA a'la' PA3CSG is on the way to completion. On 1296 I will advise when things are further along. I have a 6 x 7289 PA, but lack a driver, preamp and dish feed. My transverter is a real nice 10 mw job I "liberated" from WA4OFS. I will probably use a 10' TVRO dish, but the antenna is not yet decided. We are in a rental house and the winds are hellish here.

**W4OP:** Dale [parinc@gte.net](mailto:parinc@gte.net) moved in May of 2000 from EL96 to EM85 -- I am a initial for those stations working me on 23 cm. I worked 29 stations in the DUBUS Contest and am now at initial #53. My future plans are to expand the dish from 12' to 14' and get my YD1336 cavity playing. Currently, I see 17.2 dB sun noise at SF=190.

**YO2IS:** Szigy [yo2is@gw.ab6qv.ampr.org](mailto:yo2is@gw.ab6qv.ampr.org) writes that he has no interest in JT44 -- It is sure a nice technical achievement, but certainly will not help us to get better EME traffic skills and knowledge. It also is a pity that now a days the number of EMEers NOT interested in swapping QSLs and photos (even via e-mail) is growing and the commercial interests are always pushing back the EME traffic. Being myself a "traditionalist" I have unsubscribe from the Moon-Net some months ago. I have now decided to not take anymore EME skeds and to abandon the QSL traffic as we still do not have the "outgoing QSL bureau" of our association! I always will be pleased to make EME contacts on random with my old EME friends and show their QSLs and pictures to my visitors.



**11th OK Microwave and EME Meeting 2002: top L to R - Josef OK2SBL (father of OK2BDQ), Jirka OK1DCI (member of OK1KIR) and Zdenek OK1DFC; bottom L to R - Ivo OK2BDQ, Franta OK1CA and Honza OK1VAO (member of OK1KIR) -- Planning for EME 2002**

**ZS6AXT:** Ivo [zs6axt@global.co.za](mailto:zs6axt@global.co.za) has a bit of a late report because of an emergency -- Very poor participation in the Italian Contest plus some cable failures and a 6 m opening cut my score this year. My shorter moon window did not help either. On Saturday 18 May I started on 23 cm by working JA6AHB, SM3AKW, F2TU, G4CCH, IK2MMB, G3LTF, DF4PV, OZ6OL, SM6CKU, W2UHI, K9KFR, OZ4MM and W7BBM on the horizon. CWNr was IK3COJ. On Sunday I started on 13 cm by working JA4BLC and F2TU, then as I was fitting the CCTV camera to the dish, I did something to the 13 cm TX cable and I could not find the fault! So I went back to 23 cm and worked HB9SV and I0UGB for initial #180. Then I QSY'd to 6 cm and worked F2TU, but nil was heard from I6PNN, and back to 23 cm for IK3COJ - came back to my CQ,

GM4ISM #181, W7SZ, SM2CEW and CWNH HB9BCD. This was quite a poor score with the exception of the 2 initials. I had good weather with the exception of some wind on Sunday afternoon. On Monday while lowering the dish elevation to remove the camera, the AZ drive chain slipped (it was quite stretched already) and dish went wild, probably damaging some cables. Quick single-handed temporary repair of the drive in the afternoon allowed the dish to be safely parked. Since then, we had a cold front passing, so no idea yet what else is damaged, but hope for not much damage and expect to be QRV in June.

**K2UYH:** I did not get in much EME operation during the May SW, because I was at Dayton on Saturday. I did meet some of the EME gang there, but I did not see as many as in the past. Tom, K2AH said that he and Marc, N2IQ left on Saturday morning. I was active on 1296 on Sunday, 19 May. There were a number of stations on looking for Italian EME Contest points. I QSO'd at 2135 G4CCH (559/439) and (55/55) on SSB, 2151 F2TU (55/55) on SSB, 2159 DF4PV (45/55) on SSB - big signal, 2210 W7SZ (559/559) and 2240 W7GBI (559/559). It was good to hear Charlie active again. G4CCH told me that ON4QQ is now QRV on 23 cm, but I did not hear him on. I now have JT44 installed and am interested in skeds on 432 and 1296.

**NETNEWS BY G4RGK: CTIDMK** is presently only operational on 6 and 3cm EME. **PA3CSG** has 1.5 dB moon noise and 18 dB sun noise on 6 cm. Geert will be on 6 cm EME in June. **N4PU** is making progress and hopes to be QRV on 23 cm in June. **N9HF** in IL is gathering parts for 70 cm EME with 8 yagis. **DJ5MN** is now back home and active on 70 cm and 23 cm again. He says the IS0/DJ5MN operation was a business trip. **WA9FWD** now has a GS35b cavity completed, but has not yet powered it. G4RGK was not QRV on EME during May due to a holiday in EA8, but will be back on EME in June. **K5PJR** is putting an EME system (1296?) to put Missouri back on EME. **WALJOF** is working on a new dish. **K2DH** is moving and cleaning out. He is not abandoning EME. **K5PJR** asked about tracking programs that run on Linux for a polar mount. [See <http://www.braeside.demon.co.uk/MoonSked/moonsked.htm> or <http://www.qsl.net/gm4jji/MoonSked/moonsked.htm>. **W7SZ** reports good condx during the May SW on 1296. He worked 7 Eur stations including DF4PV for an initial. **K7XQ** has a new e-mail address [k7xq@elite.net](mailto:k7xq@elite.net). **F5SDD** has a new e-mail address [david.sanchez@teklogix.fr](mailto:david.sanchez@teklogix.fr). **AA5C** also has a new address [AA5C@ARRL.net](mailto:AA5C@ARRL.net). **VE6NA** is QRV on 23 cm. **KU4F** will be looking for stations during the June SW, 1st on 70 cm, and then will move up to 23 cm. **W6FOG** is looking for dish ideas for 1296 EME. Neil can be reached at [w6fog1@aol.com](mailto:w6fog1@aol.com). **N8PUM** is working on a 23 cm EME system. **KL6M** will be QRV on 70 cm during the June SW. **KA0Y** has fixed the feed stand of his big dish and has the 432 feed in place. Ken hopes to be back on 23 cm soon too. **VE6TA** is QRV on 23 cm and planning to expand his dish to 16'. **DK3WG** was active in May during his JA window only and worked 11 stations, but no new ones. **LX1DB** will be active during the June SW. **F2TU** will be QRV on 10 GHz on 15 Jun. **KF0M** has a new e-mail address [kf0m@arrl.net](mailto:kf0m@arrl.net). **HB9BBD** report a most enjoyable time in Dayton. Unfortunately he will make the June SW because of business, but is preparing for Pague. **K6IBY** has his antenna system completed and is operational on 70 cm now and will run random till further. **K0YW** picked up a spun aluminum 8' dish and is now interested in 10 GHz. **W7MEM** is looking for 432 skeds. **VE4MA** reports progress on 47 GHz gear.

**FORSALE: WIILP** [n0ipl@webtv.net](mailto:n0ipl@webtv.net) is looking for a 1296 preamp, feedhorn and driver PA (10 mw to 30 W). **K2DH** has for sale an 18' parabolic dish with AZ-EL mount, LNA and feed for 1296; K2AH 1296 6x7289 650 W output water-cooled PA + 6 new tubes (12 tubes total); Varian VA-802 Klystron 2304 Amplifier 400 W out/20 mW in w/pwr supply; EIMAC/Motorola 903 MHz 300 W out PA (no PS), spare tubes; 903 MHz HB transverter 30 W out, 0.5 dB NF, 145 MHz IF; SSB Electronics 2304 Transverter 0.5W output, <1dB NF, 145 MHz IF; HB 3456 transverter 0.1W output, <1 dB NF, 145 MHz IF; HB 5760 Transverter 10 mW output, <1 dB NF, 145 MHz IF; Toshiba 40 W SSPA for 3456 (1 mW input), 13.8 Vdc in; Siemens 15 W TWTA for 3456, 5760 (1 mW input), 28 Vdc in; Varian 20 W TWTA for 5760 (1 mW input), 28 Vdc in; HP 430 Power Meter w/2 bolometers; HP 431 Power Meter w/ cable, sensor; HP 432 Power Meter w/ cable, sensor; HP 432B Power Meter w/cable, sensor; 2' parabolic dish for 24 GHz; 2 K1FO 25 ele 432 beams; numerous lengths of 7/8" and 1-5/8" Andrew Heliax; and other Cables and equipment. Contact Dave at e-mail [k2dh@frontiernet.net](mailto:k2dh@frontiernet.net) or home tel 585-728-9517, cell 585-704-2973 and work 585-242-8322. **N4PU** is looking for a 23 cm transverter.

**FINAL:** Please note that we have stretched out the SW this month. This is to allow more operating time for W2WD's Neb dexpedition and we have also

listed skeds for P A0PLY [jan.kappert@comtest.nl](mailto:jan.kappert@comtest.nl) who can normally not operate on the weekend.

G3SEK sends his TNX to all for taking part in the DUBUS/REF Contest and reminds everyone to PLEASE SEND IN YOUR CONTEST LOGS! Logs can go by e-mail to F6HYE.

News on the Prague EME conference is extremely encouraging <http://www.emeconference2002.cz>. Just about everyone and his brother will be there. Among the attendees are K1JT and SM5BSZ on JT44 and DSP modes. W7PUA has submitted a paper on DSP -10 and related modes. There are also papers by W3SZ and W2RS on the sensitivity of human ears.

I must apologize for the tardiness of this NL. I think this is about the latest it has ever been. Please keep the reports and technical information coming. I will try to do better next month. CU off the moon and 73, AI - K2UYH

**SKEDS for June:**

**13 June**

**Time 432.068**  
**1430z PA0PLY-DK3WG**  
**1630z PA0PLY-VELALQ**  
**1700z PA0PLY-K9SLQ**  
**1730z PA0PLY-DL4KG**  
**1830z PA0PLY-OE3JPC**  
**1900z PA0PLY-K9SLQ**

**14 June**

**Time 432.030 432.040**  
**1600z W2WD/0-DK3WG**  
**1630z W2WD/0-UA3PTW**  
**1700z W2WD/0-SK0CC**  
**1730z W2WD/0-G3LTF**  
**1800z W2WD/0-DL7APV**  
**1900z W2WD/0-SM3BYA HA1YA -KL6M**  
**1930z W2WD/0-DL8OBU G4ALH -KL6M**  
**2000z S51ZO -KL6M**  
**2030z DK3BU -KL6M**  
**2100z W2WD/0-OZ4MM**  
**2130z G3HUL -KL6M**  
**2200z W2WD/0-KL6M**  
**2230z W2WD/0-WA4NJP**  
**2300z W2WD/0-K2UYH**

**15 June**

**Time 432.030 432.040 432.050**  
**0030z JR1RCH-KL6M**  
**0100z JA3SGR-KL6M**  
**0200z W2WD/0-W7MEM VK3FMD-KL6M**  
**0230z JH7PAV-KL6M**  
**0300z JA2KRW-KL6M**  
**0430z K7XQ -KL6M**  
**0730z UA6LGH-KL6M**  
**2000z OK2BDQ-KL6M**  
**2030z ON4KNG-KL6M**  
**2100z I5CTE -KL6M**  
**2130z DF6NA -KL6M**

**16 June**

**Time 432.030**  
**0300z W2WD/0-JA6AHB**  
**1800z W2WD/0-DK3WG**  
**1830z W2WD/0-G3LTF**  
**1900z W2WD/0-DL7APV**  
**2000z W2WD/0-KORZ**  
**2030z W2WD/0-OZ4MM**  
**2100z W2WD/0-W7MEM**

**15 June**

**Time 10368.060 10368.175**  
**1700z I4TTZ -OK1KIR**  
**1800z I4TTZ -W6HD**  
**1830z W5LUA -I4TTZ AA5C -OK1CA**  
**1900z VE4MA -I4TTZ**  
**1930z AA5C -I4TTZ**

DK3WG EASTERN 70 CM STATION INFORMATION

DXCC	CALL	QTH	ANT/el	Pwr/kw	Remark	QSL-Mgr.
ES	ES6RQ	KO28WA	12x14 BV	1.5	built	
EU	no stn				Exp. -1991, UC2O/UB4LL	(qsp)
RA1	RW1AW	KP50EB	12x15	1.5	qrt	DK3WG
	"	KO49WN		1.5	built	DK3WG
	UA1ZCL	KP78TX	5,7m-D	1.5	qrt	(qsp)
	RA3DRC/1	KO55JR	4x29	.3	grv ?	qsp
	RA3LE	KO64AR	8x10w1	1.5		qsp
	RA3YCR	KO73DH	8x26	1	silent key	(qsp)
	RW3PF	KO93CD	4x24	.8	50-170deg AZ, El <30deg	DK3WG
	RW3RW	LO02RW	4x21	1	not active	
	RZ3BA/1	KO56BC	1x38	1	not winter time	RW3BP
	UA3PTW	KO93BS	8x15 BV	1		qsp
	UA3TCF	LO26IU	7m-D	.5	built new	DK3WG
	RV4AQ	LN28FG	4x18 BV	.5	not active	
	UA4API	LO20QC	4x19	1	not active	DK3WG
	UA4NM	LO48UP	4x25	.8	only 05-13 utc	DK3WG
	RA6AAB	KN94WR	4x30	1	silent key	
	UA6LGH	KN97LF	16x25 KR	1		qsp
RA9	UA9FAD	LO88DA	8x16	1.5		DK3WG
	UA9XEA	LP63UN	4x	1	qrt	(qsp)
UK	no stn				Exp. -1990, UI2U/UZ3YWB	
UR	UR5LX	KO70WK	4x	1.5	built Ant agn	DK3WG
	UT1PA	KO21FC	4x10w1	1	el <45deg	qsp
	UT3LL	KO80AC	4x27	.4		qsp
	UT5DL	KN18EP	8x25	1	not active	(qsp)
	UT5EC	KN78MM	8x27	1	random only	qsp
	UT5UAS	KO50GK	6m-D	.2	qrt	
	UT7VF	KN68MQ	4x17 KR	1	silent key	

NU7Z wants to invite everyone the 2003 MUD in Seattle. (2002 is in CT this year).

