
VHF/UHF – An Expanding World

David Smith VK3HZ

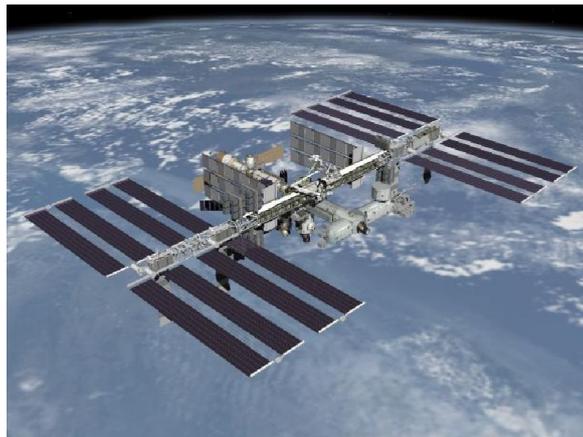
Weak Signal

David Smith - VK3HZ

The main activity this month has involved the Eta Aquarids meteor shower. This year, the shower was quite intense with fairly regular, long burns of up to a minute duration. This allowed SSB contacts, sometimes between stations in a number of states - VK's 1, 2, 3, 4 and 5. Adrian VK4OX, Arie VK3AMZ and Peter VK5PJ were regular participants. The shower was also longer than usual, lasting almost a week from the morning of the 4th of April until the 10th of April, peaking around the 6th. Look out for this shower again, this time next year.

ISS Bounce

While many of us have experienced Aircraft Enhanced signals on the VHF, UHF and microwave bands, amateurs have also been experimenting with reflecting signals from the International Space Station (ISS).



International Space Station

On May 23rd, after many attempts, Andreas DJ5AR and Jan PA3FXB succeeded in making contact on 23 cm via reflections from the ISS. Both stations used 3 m dishes tracking the ISS with Andreas running 100W and Jan with 375 W. The contact was made in CW with a doppler correction program used to correct the large (40kHz) and rapidly changing frequency shift.

There have been earlier attempts at a QSO by reflection off the ISS. SM2CEW reports nearly succeeding on 144 MHz with SM7WSJ in 2007 and also with SV3AAF. DF2ZC claims the first ever QSO via ISS scatter on 2 m with DH7FB on December 9, 2007. VA7MM reports on tests on ISS bounce with VE7BBG on 23 cm in 2004. PE1ITR tried with DK3WN in 2007.

More details can be found on Andreas' web site at www.dj5ar.de

They used a program called AirScout to assist with their planning. This looks like a very interesting tool for those interested in Aircraft Enhancement. Scroll to the end of Andreas' web page to find more details. It is also worth looking at the VK Logger forum in the Aircraft Enhancement area for more details on installation of the

program.

77.5 GHz EME Video

Recently it was reported that Sergei RW3BP had received his own echoes back from the moon on 77 GHz. Sergei has produced a video of his EME system and placed it online : www.youtube.com/watch?v=2En_W2EaJFw

The video is well worth watching, not least for the sound of the 31 kV power supply ramping up to operation, and to see his unusual method for disposing of the coolant for the TWT.

Please send any Weak Signal reports to David VK3HZ

Digital DX Modes

Rex Moncur – VK7MO

Meteor Scatter report May 2013 by Kevin Johnston VK4UH

May is the “Jewel in the Crown” of the Meteor Scatter calendar each year. This coincided with the peak of the Eta Aquarid meteor shower over the weekend of the 4-5th May. Arguably the best meteor shower of the year, the return of the Aquarids is associated with frequent loud and long signal returns or “burns” occurring over many days, supporting contacts right up to 70 cms.

Meteor showers occur at regular and highly predictable times each year as the orbit of the earth around the sun takes it through clouds of debris left behind after the passage of earlier comets. For centuries, visual meteor showers have been named after the constellation of stars where the meteors appear to be emanating in the sky. The source of the meteors is not the constellation of the stars itself, which may be millions of light years away, but rather by the location of the comet path in the earth’s orbit around the sun ie the date, for the same reason our birthdays always fall under the same sign of the Zodiac each year.

Meteor showers are not rare events, there being at least 11 per year. The Eta Aquarids coincide with the ascension of the constellation of Aquarius the “Water Bearer” in the sky. Eta Aquarii being the name of its brightest star. In this case the debris producing the meteors comes from the remnants of Halley’s Comet.

Regrettably my calendar took me to a conference in Melbourne over the entire period where I was only able to scan the logger on my I-phone to observe the MS activity occurring without me. The logger was full of reports of 2m MS contacts in and out of the normal activity sessions and on both sides of the Tasman. Many long burns were sufficient to support SSB MS contacts as reported by VK3AMZ to VK4OX on May 4-5. There were also reports of 432 MHz FSK441 signals being successfully decoded, where signal returns are always much weaker and shorter in duration.

Conditions for Meteor Scatter over the weekends of 11-12 and 18-19 May, after the end of the Aquarid shower, returned to baseline typical for this time of year. Most stations reported low ping rates and very weak and short returns. This gave the opportunity to trial the new mode JTMS and compare it to FSK441 under these difficult conditions. A number of stations including VK3AMZ VK4MIL VK4LHD VK2XN VK2DVZ VK2AMS VK4NWH and VK4UH participated in on-air tests of JTMS on 144.330, avoiding conflict with FSK441 operators on 144.230 as the two modes are not compatible.

JTMS (Joe Taylor Meteor Scatter) is one of two hidden experimental modes within the latest versions of WSJT 9.3. Activation of these modes requires the creation of an empty file called "experimental" within the main WSJT program folder. Instructions on how to do this are to be found on the web and logger forums. The caveat is that the added file must not have a .txt extension. Once activated the two new modes JTMS and Diana appear as options in the pull-down mode options in the WSJT user screen and operation is essentially the same as in FSK441 although the setting of the sensitivity "S" parameter becomes far more critical.

JTMS appears to have the ability to decode very short meteor returns of less than 100 ms where FSK441 has great difficulty. It also runs an effective averaging function across multiple pings. First impressions on-air suggest that there is "good potential" for this new mode particularly under poor conditions where meteor pings are both weak and of short duration.

New Version of WSJT version 9.5 r3281

This version is now available on the Joe, K1JT's web site at:

<http://www.physics.princeton.edu/pulsar/K1JT/wsjt.html>

The main improvement is to the JT4 mode which now includes a Deep Search facility and works to around -26 dB on signals that are not spread and yet copes with spreading up to 150 Hz in the JT4F sub-mode and still achieves a sensitivity of around -20 dB. This improved version of JT4 was used for recent 24 GHz EME World records by VK3XPD and VK7MO and should also be very useful for 10 and 24 GHz rain scatter.

Another feature is that it is possible to use this version as a Test Signal Generator for all modes. This is done by typing a line in the TX 6 box such as:

#-14.01

After this is done the program will generate test signals in other message boxes, which in the above case are at -14 dB S/N with spreading of 10 Hz. The numbers after the decimal point represent the spreading when multiplied by 1000, so for example 0.5 indicates 500 Hz spreading. The test signal can be transmitted at audio to a second computer and one can look at the effects of both S/N and spreading on the decoding on different modes.

Please send any Digital DX Modes reports to Rex VK7MO

The Magic Band – 6 m DX

John McRae - VK5PO

Hi fellow 6 metre enthusiasts.

This report comes to you as I am holidaying in the US and Canada. I have my IC7000 with me, and will be looking around for VK stations. Operating from Courtenay BC, signing VE7/VK5PO.

The place to be is DARWIN, as these fantastic logs will show. Great contacts fellows!

This station log from Gary, VK8AW reads like a 20 metre band log! It is complimented by fellow Darwin station VK8MS' log below.

My count for DXCC entities equates to 17 worked. That is fabulous DX Gary. Some operators on six metres may take years to get 17 DXCC on this MAGIC band!

Gary, VK8AW writes:

Fantastic month of DX on six metres from up here in Darwin.

My set up is: 6M9KHW antenna at 45ft, fed with LDF5-50 hard-line from my IC7700. I am also using a TE amplifier for 400watts out and a 13db pre-amp.

On the 1st of May, between 0700z and 1205z I worked these stations.

On CW, KH7Y and JA6TEW and later I scored A92IO in Bahrain on SSB!

The 20th of May was a great night of DXing on 6 metres.

Between 0745z and 1205z on the 2nd Fred, KH7Y was romping in on CW.

VU2RBI, A92IO and YB0AKM then worked. Again on the 3rd I worked Dave, A92IO in Bahrain on SSB.

On the 20th of May, the magic of six came to fruition when at 10:02z, SV1DH was worked on CW.

For the next one and a half hours these stations were worked on CW.

HA0DU, EA3GP, SV2DCD, DK2JP, 5B4AGN, VU2RBI, 4Z1UF, IC8TEM, IZ8EDJ, IZ0CGV, SV1JGX, IS0GQX, 4Z1TL then finally two more Greek stations SV8RX and SV8CS before the EU propagation faded away. I finished the night of fabulous DX by working KG6JDX on Guam.

The Magic returned on the night of the 24th, When it opened into Spain right at 10z. EA6SA, EA6BB and EA5BY worked on CW, and Li, BA4SI called me. HA8CE, ER1SS, HA8FK and OE5KE were the worked. At 1120z, the band quietened down to an all too familiar white noise.

On the 29th at 12:19z, EX8MLE was worked also

The SMORGASBORD of top end DX continues, with VK8MS logs below!

Mark, VK8MS writes:

May 2013 has seen a continuation of TEP associated propagation with the equinox from March/April, I will not even try to analyse the modes of propagation we have experienced as there seems to be a different mode of conditions reported from many more experienced six enthusiasts than myself.

We have seen continuous almost nightly openings to most of the Asian region and regular conditions to the middle east with contacts to Dave A92IO and A47RB with a few rare openings to Europe between the 19th and the 24th. Following is an extract of some of the DX heard & worked here in PH57 Darwin.

1\5\2013

0949z KH9/WA2YUN/B

1156z YB0MWM 59 calling CQ

1206z A92IO

2\5\2013

0927z KH9/WA2YUN/B

0939z VU2RBI

0945z A92IO

1050z A47RB/B

3\5\2013

1035z Many JA Stations with 59 PLUS signals, Having Local JA QSO's

1047z A92IO calling CQ

4\5\2013

0933z KH9/WA2YUN/B

1011z Many JA's Calling CQ with many 5x9 PLUS signals!

1125z AH2G/B

1127z KG6JDX

1214z YB0AKM calling CQ

1229z BG6CJR

1232 BV1EL

1246z A47RB/B

5\5\2013

1228z DU7/PA0HIP calling CQ

1250z YB0AKM calling CQ

1250z 9M2/JG3TTO

9\5\2013

1039z VU2RBI on CW at 599

1054z KG6JDX worked again also

19\5\2013

1050z SV1DH being heard here by VK8AW, I could only hear snippets of SV1DH call then I heard a HA Station calling, then it all disappeared.

1204z HL2CFY

20\5\2013

Between 0948 and 1136z VU2RBI , IZ8DWF, SV1DH , EA5GP , SV2DCD, 4Z1UF, IZ8EDJ and IV8CH worked on CW. Most signals were at 559

22\5\2103

1014z LZ2WO on CW 559, and many other weak EU. Stations! Low level signals with pile ups. This made it VERY difficult to work a lot more stations.

1228z A92IO Calling CQ

23\5\2013

0950z A92IO

1234z 9W6RT calling CQ

24\5\2013

Three NEW DXCC worked!, Moldova, Corsica and Hungary in the log with the band opening between 1027z and 1119z. ER1SS was 57 on SSB, and these others all CW contacts with signals averaging 519, HA8CE , TK5JN , TK5JJ ,S50A , S58N , IK5TPP , OE5KE , DF8LC and the last station I managed to work at 1119z, HA8CIK.

Hearing many EU Stations during opening on top of each other very difficult to receive call signs, heard some of the following unable to make 2 way contact, EA6SA, F8ZW, OM7PY(A new one for me!), US0ZZ and many Italy and others, as the band faded down with EU signals disappearing into "that" white noise

25 to 27\5\2013

From around 0900z to 1330z most evenings hearing same Video indicators and Beacons from Middle East & Asian region.

29\5\2013

Surprised by a 59 SSB signal from EX8MLE, that was at 1206z, CW contact made a little later at 1227z, Serge was 559.

I have not logged all the JA & BY Stations heard as there is too many to keep track of as this is regular path from VK8 to the Asian region.

Overall 20th & 24th of May were the two best days into EU as indicated above, and as previously mentioned, it proved very difficult to receive many stations due to weak signals, and pile ups of stations. You may think it unusual so late in may for EU openings? Darwin stations have seen this before, like in cycle 23, between 29th May and the 1st June in 2002, many EU Stations were worked . Similar regions worked back then again at the end of last cycle when we had EU openings this late identical Day & time 20\5\2003 to Italy, Malta & Spain then last opening of Cycle 23 was into USA November 2003 so its been a long time between opening to EU from here hopefully this is not it for the current sunspot cycle.

Several VK3 stations worked into JA on the 20th of May with some TEP. VK3XDX worked the first JA station at 06:55z, The ubiquitous JR2HCB was worked many times by most of the VK3 stations on at the time. Hiyo San must be in every VK stations log by now!!

VK4WTN worked VK7DX on SSB 21st at 06:02z for about half an hour when the propagation surprised them both with 59 signals prevalent

Frank, VK7DX had some fun working the south island of ZL, snaring half a dozen stations with excellent signals on the 29th May. Contacts were made between 0629z and 0734z.

Please submit reports, logs or other info you may consider useful to John VK5PO