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# VHF/UHF – An Expanding World

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David Smith VK3HZ

## Weak Signal

David Smith - VK3HZ

Early in April, there was some enhanced propagation across the Bight. On the evening of April 5<sup>th</sup>, the VK6REP 2 m beacon in Esperance was heard by Jim VK3II. He then attempted a JT65 digital contact with Derek VK6DZ but only received one decode. On the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> of April, Phil VK5AKK reported hearing the Esperance beacon. However, no contacts resulted.

On the morning of April 17<sup>th</sup>, Norm VK7AC worked 1000+ km into the Adelaide area on 70 cm, having contacts with Peter VK5PJ and Phil VK5AKK.

Conditions on the microwave bands in western VK3 were excellent on the morning of April 26<sup>th</sup>. Colin VK5DK in Mt Gambier worked Alan VK3XPD in Camberwell on 10 GHz SSB, reporting S9 signals.

## VK3 2.4 GHZ QSO Party

In what is becoming something of a tradition (well, it happened last year on the same day) Easter Monday saw the second of the VK3 2.4GHz QSO parties. This year, it expanded somewhat into a VK3 and VK5 event, with activity on a number of microwave bands. Michael VK3KH reports:

*Last year at Easter, a group of Victorian Microwave operators decided it would be good to give our 2.4GHz gear a bit of a shakedown, so we set up at different locations early on Easter Monday, and for several hours had a ball making contacts with each other. Because we had such a good level of involvement last year, it was decided to again repeat the activity this year.*

*I set myself up on the side of Arthur's Seat on the Mornington Peninsula (a favourite portable location). The weather was spectacular, with no wind and bright sunshine. Oh, life is tough!*



**Mike VK3KH's setup on Arthur's Seat**

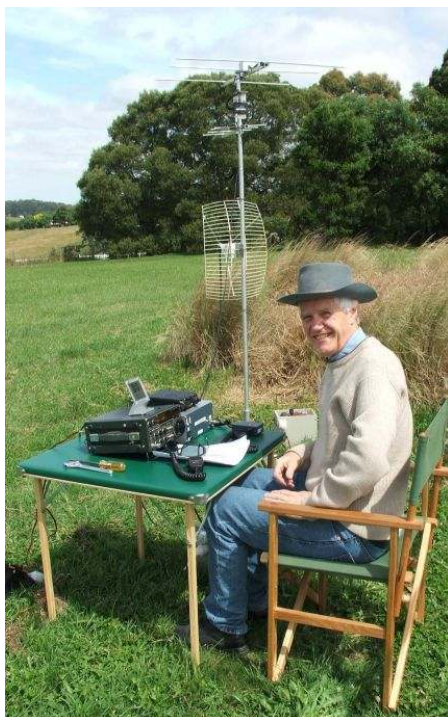
*I was ready just before 8am with 2 metres for liaison and 8 W from my transverter and gridpack on 2.4GHz. A check of the beacons on 2 metres and there was VK5VF, the Adelaide beacon at 5/2. Conditions were looking great. A quick contact on 2 metres with Jim VK5OM/p near Naracoorte and Bill VK5ACY at Bow Hill, confirmed things.*

*Then turning to 2.4GHz, stations started to appear from everywhere. Over the next hour and half, I worked Ian VK3AXH, Ian VK3IDL and John VK3AIG (each with their own stations) on Mt Buninyong, Alan VK3XPD at home, Chas VK3PY and Lou VK3ALB just outside Geelong, Rob VK3MQ on Mt Dandenong, David VK3QM on Mt Rouse near Hamilton and Trevor VK5NC with the SERG Group near Mt Gambier. I also tried for Ralph VK3WRE but despite his 5/9 signal on 2 metres, we could not hear each other on 2.4GHz. Sorry Ralph.*

*It was a very enjoyable mornings work. Along the way, I also managed contacts on 2 metres with Ian VK1BG in Canberra (via AE), Peter VK5PJ near Adelaide and Jim VK3II, just across Western Port Bay. You owe me for a new needle, Jim.*

*Eleven stations operational on 2.4GHz is a very good effort. Thanks for all making the effort. A number of the guys had taken other bands as well, most notably 10GHz, and continued on trying for contacts on these bands. I unfortunately had another commitment and was packed up and on the way home by 10am. I am looking forward to next year!*

Colin VK5DK with the SERG group in Mt Gambier reports contacts on 2.4 GHz with VK3QM/P, VK3PY, VK3AXH, VK3IDL/P, VK3AIG/P, VK3KH/P, VK3ALB/P and VK3MQ/P. The paths to VK3KH and VK3MQ were 425 km.



**Rob VK3MQ on John's Hill last year**

That's an impressive level of participation for an event that was only organised a week before. With the increasing number of people now constructing microwave

gear and operational on the bands, it looks like there is now a lot of interest in these sorts of events, where people can get out onto hilltops knowing there'll be plenty of stations to work. Last year, an attempt was made to organise regular monthly Microwave Activity Days (MADs) but it seems that monthly is perhaps too often for many. Currently, there are only the three VHF/UHF Field Days, which are not exclusively dedicated to microwave activity and have the pressure of being a contest. There is also a hole of around 6 months between the summer and winter events. A regular Easter social event could fill that hole quite nicely for a national microwave-only activity day.

### ZL3TY Sporadic E on 2 m in January

Bob ZL3TY, located in Greymouth on the west coast of the NZ south island, had an interesting time in mid January with some excellent sporadic E contacts into VK including his best ever 2 m contact to Garry VK5ZK in Goolwa. Here is an extract from his log:

| DATE       | TIME  | CALLSIGN | LOCATOR | TX  | RX  | MODE | DISTANCE |
|------------|-------|----------|---------|-----|-----|------|----------|
| 13/01/2011 | 03:17 | VK2EI    | QF68    | 53  | 53  | SSB  | 2017+-   |
| 13/01/2011 | 03:19 | VK5ZK    | PF95    | 51  | 51  | SSB  | 2917+-   |
| 13/01/2011 | 03:20 | VK5NY    | PF94HS  | 53  | 53  | SSB  | 2913     |
| 13/01/2011 | 03:24 | VK5AKK   | PF94IX  | 51  | 51  | SSB  | 2895+-   |
| 13/01/2011 | 03:26 | VK2MAX   | QF68JV  | 59  | 59  | SSB  | 2063     |
| 13/01/2011 | 03:29 | VK2ZT    | QF57WF  | 59  | 59  | SSB  | 2008     |
| 13/01/2011 | 03:30 | VK5GF    | PF94HK  | 57  | 57  | SSB  | 2897     |
| 13/01/2011 | 03:30 | VK2AMS   | QF68FC  | 55  | 55  | SSB  | 2027     |
| 13/01/2011 | 03:33 | VK5DK/2  | QF68    | 55  | 55  | SSB  | 2017+-   |
| 13/01/2011 | 03:34 | VK5NC/2  | QF68    | 58  | 58  | SSB  | 2017+-   |
| 13/01/2011 | 03:35 | VK5JL/2  | QF68    | 58  | 57  | SSB  | 2017+-   |
| 13/01/2011 | 03:36 | VK2ZTV   | QF57    | 59  | 59  | SSB  | 2009     |
| 13/01/2011 | 03:37 | VK2KOL   | QF56    | 55  | 55  | SSB  | 2023+-   |
| 13/01/2011 | 03:38 | VK2XTT   | QF56IF  | 59  | 59  | SSB  | 2030     |
| 13/01/2011 | 03:39 | VK2BCC   | QF56    | 59  | 59  | SSB  | 2000     |
| 13/01/2011 | 03:40 | VK2EEC   | QF55    | 59  | 59  | SSB  | 1961+-   |
| 13/01/2011 | 04:18 | VK2TS    | QF55KL  | 55  | 55  | SSB  | 1971     |
| 14/01/2011 | 01:14 | VK4OX    | QG63KF  | 55  | 55  | SSB  | 2410     |
| 14/01/2011 | 01:16 | VK2DVZ   | QF68GD  | 51  | 51  | SSB  | 2025     |
| 14/01/2011 | 01:17 | VK1DJA   | QF44MF  | 55  | 55  | SSB  | 2044     |
| 14/01/2011 | 01:18 | VK1BG    | QF44MS  | 52  | 52  | SSB  | 2073     |
| 14/01/2011 | 01:19 | VK1KW    | QF44MT  | 52  | 51  | SSB  | 2076     |
| 14/01/2011 | 01:20 | VK2BHO   | QF55KK  | 57  | 58  | SSB  | 1968     |
| 14/01/2011 | 01:22 | VK4ARN   | QG62NI  | 51  | 51  | SSB  | 2320     |
| 14/01/2011 | 01:40 | VK2QO    | QF55    | 559 | 559 | CW   | 1961+-   |
| 14/01/2011 | 02:20 | VK2ZT    | QF57WF  | 55  | 55  | SSB  | 2008     |
| 14/01/2011 | 02:26 | VK2AMS   | QF68FC  | 54  | 54  | SSB  | 2027     |

### Passing of Cecil Andrews VK6AO

After suffering ill health in recent years, Cec Andrews VK6AO passed away on Friday 15 April. Although I never had the privilege of working Cec, he was a leading force in the VHF/UHF area for many years. Wally VK6KZ writes:

*Although limited in operating as VK6AO in recent years, following his first stroke, Cecil Andrews will be remembered for his tenacious operating on 50, 144, 432 and 1296 MHz. Many operators in VK3, VK5, VK6 and VK7 would have heard him on*

*these bands and would have been thrilled to work a VK6 in Perth!*

*Those in Perth would know his marvellous skills in construction of much of his equipment, his tower and his antennas. His construction of U-shaped omnidirectional antennas for 144 and 432 MHz for the WA VHF Group beacons in Perth, Mt Barker, Dampier and Esperance have stood the test of time.*

*Vale Cec!*

Please send any Weak Signal reports to David VK3HZ

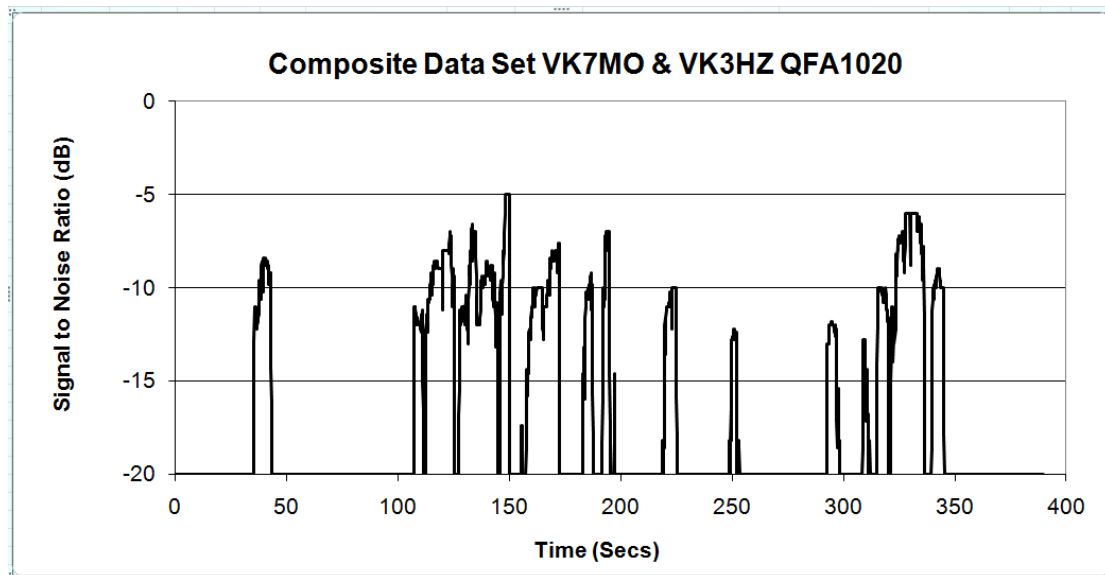
## Digital DX Modes

Rex Moncur – VK7MO

### **New Experimental ISCAT Mode for Microwave Aircraft Scatter**

Following success in using ISCAT for 10 GHz aircraft scatter, Rex VK7MO and Dave VK3HZ suggested to Joe Taylor K1JT that it might be possible to improve the mode for this application. The main limitation of ISCAT is that it uses 1800 Hz bandwidth and that leaves little room for the signal to move around with Doppler in a typical VHF transceiver that may have a bandwidth from only 400 to 2400 Hz or about 2000 Hz. Rex and David have recorded Doppler shifts of up to 1000 Hz/min on aircraft crossing the path of propagation at right angles. It was suggested that a half speed mode, which would have half the bandwidth (900 Hz), would allow a useful variation with Doppler of up to plus/minus 500 Hz. A half speed version would use half size bins and should improve the performance by 3 dB at the expense of requiring bursts of signal twice as long. The present version of ISCAT works with bursts of around 0.5 seconds and most bursts of signal on 10 GHz aircraft scatter are a couple of seconds – so this should not be a problem.

Joe responded very positively but pointed out that running at half the bandwidth and half the speed would reduce the ability of the program to cope with Doppler variations by a factor of four but he felt he could overcome this by tracking the Doppler. Joe produced an experimental version called ISCAT-A and after extensive simulation testing (using a swept signal generator to simulate the Doppler) it was tried in field from the grid square QE47 near Swansea Tasmania to Werribee in Victoria. While this path is only 10 degrees off the Hobart-Melbourne flights and thus does not test the program with rapid Doppler variations it did show the value of the new sub-mode with an easy completion on a single aircraft pass. Fig 1 below shows the signal to noise ratio obtained on this path. Note that the signal comes in bursts of a few to several seconds and lasted around 5 minutes on this single aircraft pass. The new sub-mode also demonstrated a useful performance improvement and will work to around -13 dB on a single burst. As seen from Fig 1 most of the bursts are stronger than -13 dB and thus produce good decodes.



**Fig 1: 10 GHz aircraft scatter signals from Werribee in Victoria to Swansea in Tasmania**

The next step is to test ISCAT-A with aircraft crossing at right angles and this will require a trip to the mainland. ISCAT-A is still under development with new versions coming out each time Joe gets feedback. Until tests are completed the new mode will not be made generally available but if you would like to test the latest version contact Rex VK7MO.

Please send any Digital DX Modes reports to Rex VK7MO

## The Magic Band – 6 m DX

Brian Cleland – VK5BC

During April good TEP openings from northern areas of VK to Japan, China etc became a daily event with a few openings extending to southern areas of VK3, 5 & 6. Also several contacts were completed between far northern VK4's and Darwin VK8's to KH6.

Dale VK4SIX from Atherton reports that he and John VK4TL have been working into Japan, China, Taiwan, Korea, Hawaii and the Philippines most days up until late in the evening.

On 3rd April Jeff VK4BOF near Innisfail worked JA's JA2BNV, JI1CUL, JA1QOP, JH1WHS, JF3DRI & JF1KJC all on 50.120 with 5/9 signals or better, not bad for a K3 + 80M inverted V.

7th April saw KH6 stations making contacts into northern VK4 and VK8. Richie VK8RR & Mark VK8MS both in the Darwin area worked Art KH6SX and Kevin VK4BKP in Mackay worked Fred KH7Y. Several other contacts from these areas were made into KH6 during the month.

Interestingly on the 7th April Phil VK4FIL in Brisbane decoded JH0IXE in PM85 on 50.2930 WSPR at +10. This would be one of the 1st WSPR decodes on 6m outside of VK, well done Phil.

12th April Victor E51CG in Rarotunga worked many XE's, great to see the activity from Mexico and let's hope it extends to VK in the near future.

In VK5 there were several JA openings during the month although most were short in

duration with weak signals. JA's were worked on the 3rd, 5th, 6th, 7th, 8th, 9th, 13th, 22nd & 30th April. The highlight was the opening on the 13th when up to 5 stations from China were worked on SSB & CW including BA4SI, BD9BU, BD4QH, BD9BA & BG0GE/9 as well as several JA's between 0700UTC -1030UTC. During this opening David VK5AYD from Coober Pedy was also being heard & worked in the Adelaide area with S9+ signals via short 'E' skip and later in the opening the band opened to VK4 with VK4EK, VK4WTN worked by several VK5's. The 14th also started well with good early morning opening from VK4 to VK5 and followed by good contacts from VK5's to David VK3AUU and Andrew VK3OE.

From VK6 Rod VK6KP reports a good month in Karatha;

01/04 Evening TEP - JA 2 and 6 plus BD9BU

02/04 Open all afternoon JA4/5/6

03/04 Open afternoon and evening

06/04 Very strong afternoon opening to JA1/2/3/4 all 9+ Good evening TEP DS2KGJ/BD9BU and BV1EJ/VR2XMT both calling CQ plus 9W6RT (5/4) on 115 with huge JA dogpile!

07/04 Another very strong afternoon opening JA0/1/2/3/4/6 followed by a good TEP evening opening. JA's/VR2XMT and BV2YA/B on 50.001

10/04 Late afternoon JA's and BA4SI

11/04 Late afternoon/evening JA5/6/BD9BU and DU heard. XV2RZ on 50.098 working JA. Still open afternoon 1300z. \* TV 48.251/244/260 offsets heard from Middle East and 89.9 from Shanghai?

14/04 Evening TEP Many JA's and BD9BU calling CQ 110 1225z.

15/04 Evening TEP Many JA's plus DS2KGJ/DU/PA0HIP all good strength.

16/09 Afternoon strong opening. JA1/5/7/9 ALL S9.

17/04 Very strong afternoon and evening TEP opening to JA.

22/04 Strong afternoon opening to JA1/2/3/4/5/6

23/04 Evening TEP opening. Number of JA's, only worked JE6LMH 5/9 at 1015z

29/04 Strong afternoon opening to JA. A lot of crud etc across 50. Worked JM6JJA/6599 both ways.

Meanwhile Rex VK6ARW in Exmouth North West Cape says he is going through a learning process and enjoying 6m during this process and reports the following 6m activity for April:-

05/04/2011 8 JA's between 0658 – 0707 UTC

07/04/2011 16 JA's between 0505 – 0618 UTC

09/04/2011 51 JA's between 0639 - 0801 UTC.

Further south from the Perth area Andy VK6OX reports;

*The 1st of April saw an opening to JA from this QTH with two stations worked at 0901Z and 0919Z. VK6IQ Glen, who is located about 50 km north of Perth also worked a JA during this period.*

*On the 7th we had another good opening to JA from about 0600Z onwards. Signals were up to S9 at this QTH and several stations in JA1 and JA3 were worked. VK6IQ, VK6ZKO and VK6DU also enjoyed the conditions with a good number of stations being worked on both SSB and CW. On the 9th, the band opened again and many*

*JA's were worked by VK6IQ and others. (As luck would have it, I was recovering in hospital from elective surgery, so I missed out!!). Glen also worked HL1VAU in Korea during this opening. 16th April again saw an opening, with VK6IQ, VK6ZKO and possibly others getting amongst the action. The band was pretty quiet until the 26th, when a very brief opening saw Glen snag JO3UGX Ross although he reported signals were marginal.*

*VK6XLR Rick in Geraldton has also managed to work a few JA's.*

*Peter VK6KXW has been closely monitoring TV signals from further a field i.e. Middle East and Central Europe but to date has not managed any QSO. It's probably early days yet and the MUF is not getting to 50MHz, not to mention the Sun's refusal to get its act into gear!!*

Received a note from Lance VK6DU in Perth who says;

*I am relatively new to 6m and have now worked 5 countries, VK, ZL, A3, E5 and JA (since Jan 2006).*

*The following is a report of my 6m JA QSOs (on CW) in April 2011.*

*14/04/2011 - JA1RJU, JI1CUL, JA7DUI,*

*16/04/2011 - JH0HZO, JA1ADU, JM1WBB, JM1TWR.*

Well done Lance.

Although April wasn't the best for Meteor Scatter, contacts continue to be made early each morning on 50.200MHz. Liaison for these contacts is carried out on VKChat with contacts being spotted on VKLogger. This group started and is organized by Brad VK2QO after Brad completed contacts with John VK4ZJB and Brian VK4EK 2 years ago is still running strongly as ever. Listen on 50.200 any time before 2200UTC any morning and join in the challenge of completing Meteor Scatter contacts.

Please send any 6m information to Brian VK5BC