VHF/UHF – An Expanding World

David Smith VK3HZ

Weak Signal

David Smith - VK3HZ

January 13th was a notable day with a huge sporadic E opening on 2 m covering the eastern side of the country. We had VK2 working into Adelaide, VK3 into VK4, VK7MO in Hobart working into VK2 and VK4, and ZL in the mix too.

Of particular note was VK9NA on Norfolk Island working into central VK3. Chas VK3PY had a dream come true when he worked them, finally succeeding with the goal to work all VK Call Areas, including VK0 Antarctica some 24 years ago.

Another contact of note, and probably the longest for the season, was Phil VK5AKK working Bob ZL3TY – a distance of 2924 km. This is the fourth year in a row that VK5 stations have worked into ZL on Sporadic E. On January 5th 2010, Phil worked Nick ZL1IU – 3182 km; on January 1st 2009, Geoff VK5GF worked Nick ZL1IU – 3179 km; and on January 9th 2008, Brian VK5BC/p at Corny Point worked David ZL1BT – 3400 km. So, a recommendation to VK5s in the Adelaide area might be to not take a holiday away from your shack in the first two weeks of January!

VR2RSY Beacon

The VK2RSY 2 metre beacon has been restored to service after the PA failed. A more efficient 25 W amplifier has been installed that should be more reliable. The frequency was adjusted against a GPS reference to +2 Hz - the adjustment is not capable of any finer resolution.

Brian ZL1AVZ reports that the VK2RSY 23 cm beacon was received at Muriwai west of Auckland RF73FD on the morning of 30/1/2011 on a 1 metre dish RST 429 in for at least 3 hours. 2 metres was wide open at the time.

Travelling with 2 metres

Fred VK2FWB is now operating portable and reports good contacts from Parkes on 13 February with Bob VK3AJN, Trevor VK3VG, Norm VK3DUT, Jeff VK5GF, Peter VK5PJ and several VK1s. He hopes to be on a hill somewhere in central and southern NSW most Sunday mornings with 50 W and 6-element beam on 2 m SSB.

Fred was very active during the 1980s as VK2YZU on AE with VK2ZAB from Sydney and in the 1990s from Parkes as VK2YZU / KZU / FWB on AE to eastern Victoria. He has now retired and is travelling in a caravan.

VK3BJM Activities

Regular contributor Barry VK3BJM sent in the following report of his recent activities:

True to form, I was at work on January 13th - the day Es opened the door between VK9NA and VK3.

Saturday made up for it, though. In the morning, prior to the Summer Field Day kicking off, I switched on for the usual AE period at about 2115z. The VK5VF 2 m beacon was a good strength. Calls on 144.100 resulted in working Bill, VK5ACY at 2121z. Bill was a comfortable 59+10 signal on 2 m. Next was Brian, VK5BC/p at Corny Point, on 2 m and for the first time on 70 cm and 23 cm between 2123 - 2130z. Signals seemed a little better on 23 cm than 70 cm, over the 711 km path. This contact gave me PF85 on 70 and 23 cm; perhaps it also gave Brian QF22 on those bands, too?

Fifty minutes later I worked Jeff, VK5GF, again on 2, 70 and 23. This was the first

time I'd worked Jeff on 23 cm, too. Signals were impressive - a consistent 58 exchanged on all three bands. This was also the first contact I'd made on 23 cm into PF94. Not long after that I worked Gary, VK5ZK at 59 each way on 2 m; that was followed by our first contact on 23 cm.

At 2258z Mark VK2EMA was worked at 59 on 2 m, but attempts made on 70 and 23 were unsuccessful. At 2308z Leigh VK2KRR was worked on 1296.150, with signals steady at 59+.

I had a break before rejoining everyone for the Field Day. Propagation was reasonably good during the afternoon, and contest traffic was moving briskly. Working Jim VK5OM/p3 on 23 cm gave me the locator QF03 on that band, which was a nice bonus; thanks Jim! Saturday wound up with three new locators on 23 cm, and one on 70 cm - took the sting out of missing the lads on Norfolk Island. A bit.

The following weekend was preceded with the news that Rex, VK7MO, would be operating portable from Mount Poimena on Sunday the 23rd, activating QE48at. I had just put the finishing touches on my new 23 cm antenna - a 4x 50-element array of T-Boom Yagi - so I decided I'd drop the tower Saturday afternoon and miss the Sunday morning AE session whilst I installed the array and tidied up a few other issues with cables in the H-frame, prior to Rex being QRV.

Surprisingly, Murphy was occupied elsewhere in the country at the time, and the tower was back up just after 0001z, which was when Rex was hoping to be on air. A few quick tests proved everything was working, and by 0033z I'd worked Brian VK5BC/p at Corny Point on 23 cm for the second time in a week! Later tests using the VK3RXX beacon suggested an improvement on that signal of between one and a half to two S-points with the new array.

The beam heading to Rex wasn't brilliant for me - Mount Macedon, only 22 km away, presented itself as a major hurdle. Rex was certainly there on 2 m, as he worked the lads from Geelong. I listened as he worked VK3PY, then VK3AKK, then VK3ALB, then VK3QM - as Rex worked David, QSB took Rex away... Despite a few attempts, nothing got through. At this point I wanted to walk away completely! However, I decided a trip to the kitchen and back was far enough to settle the mind. I'm glad I decided on that - ten or fifteen minutes later, Rex reappeared a little stronger than before, and reports were exchanged. Unfortunately conditions, and my local topography, meant the higher bands weren't feasible - but a contact on 2 m over Bass Strait from this far inland is always very pleasing. The path is 541.5 km.

Things were a little easier when Rex headed to Mount Owen, QE27tv, on Thursday the 3rd of February. Again, conditions weren't astounding but the VK7RAE 2 m beacon held in all afternoon at 419, and Rex was work without much difficulty on 144.225 MHz at 0319z; reports of 51 and 54 being exchanged. Nothing was heard on 23 cm. Path this time was 551 km. I won't be alone in thanking Rex for the effort put in to activate both of these locators.

Evaluating the new 23 cm array continues, but initial result are suggesting an increase in AE "window" time to Ian VK1BG. An Airbus A330 at 38000' provided consistent 51 to 52 signal strength between 2131 and 2137 this morning (Friday 4th February). Photos of the array during construction and after installation are on my Flickr page (http://www.flickr.com/photos/72319077@N00/).

I've also started adding a couple of new pages to my website (http://www.qsl.net/vk3bjm/) covering ADS-B, T-boom Yagi and a few other things.

Please send any Weak Signal reports to David VK3HZ

Digital DX Modes

Rex Moncur – VK7MO

Another New 2 Metre Digital Record

Hot on the heels of last month's 2497 km record-breaking contact between Derek VK6DZ and Jim VK3II, Derek has extended the record to 2661 km. On the evening of February 12th, he worked Leigh VK2KRR using JT65b with signal reports peaking to –2. Derek's setup consists of a Kenwood TR-9000 with 70 W brick amp and 6-element yagi at 10 metres with a site elevation of 2 meters above sea level. Leigh was running an IC-910H into 4 x 17-element yagis and 120W.

Correction

In the February edition of AR, the callsign of Robert VK4LHD was incorrectly referred to as VK4LDH. Robert tells me he has a severe hearing impairment and thus the digital modes provide a special benefit in his situation. He is active on FSK441 and is keen to explore JT65 on 2 metres although is still coming to grips with the procedures. If you are within tropo-scatter range of the Sunshine Coast and operational on JT65 look out of Robert on the VK Logger and run some tests with him.

Activation of QE27 from Mt Owen

Rex VK7MO and Joe VK7JG planned to activate QE27 on the West Coast of Tasmania on 144, 432, 1296 and 10368 MHz on 3 and 4 February. As it turned out Joe had car problems and did not make it. With the reduced manpower Rex did not set up the 432 MHz station. A total of 11 QSOs were made on 10 GHz with four separate groups at Mt Gambier, near Geelong, the Dandenong ranges and South Gippsland. Eight of these were on digital and three on SSB. On 144 MHz 17 stations were worked - all on SSB. Despite many attempts during the late afternoon no QSOs were completed on 1296 MHz. It is interesting to contemplate why there was propagation on 144 MHz and 10 GHz yet none on 1296 MHz. The answer seems to be as follows:

Initially Rex set up on 10 GHz and worked Colin VK5DK over some 630 km at Mt Gambier on the digital mode JT65c. The Hepburn charts showed there was the possibility of some tropo enhancement. The signal on the waterfall showed no significant spreading consistent with a duct giving the enhancement. Shortly after Rex worked David VK3HZ in the Dandenong ranges and again there was no spreading of the signal.

By mid afternoon the South Gippsland group of Ralf VK3WRE, Peter VK3PF and Jim VK3ZYC were operational but there was little evidence of signals - just occasional traces on the waterfall. But some time later the signal strength increased rapidly with wide spreading of the signal. Sufficient to work SSB even though very rapid QSB combined with the spreading made it difficult to copy. This is typical of rain-scatter on 10 GHz.

By late afternoon a further test with the Mt Dandenong group which now included Peter VK3TPR showed signals had faded to just a trace on 10 GHz with no evidence of spreading. At this time Norm VK7AC was reporting strong signals on VHF via a duct from Northern VK7 to VK3 but no sign of Rex's signal on 1296 MHz. The explanation seems to be that the duct was trapping the signal and preventing it getting over the Mountains in central Tasmania. This also seems to explain the initial lack of signals to the South Gippsland group.

A repeat test with VK5DK showed signals had weakened but the there was now

spreading as evidence of rain scatter.

By the early evening the Geelong group led by Chas VK3PY were set up and worked with good signals on 144 but there was no evidence of signals on 1296 or 10 GHz. Rex told them he had to pack up to get off the Mountain before dark but on their pleading agreed to pack up the 144 and 1296 MHz stations and leave the 10 GHz system running. Sometime later the Geelong group telephoned saying they could hear the 10 GHz signal and an attempt was made at SSB. The SSB signals were distorted with rapid QSB typical of rain-scatter but were too weak to complete a QSO. By going to the digital mode JT65c QSOs were completed with VK3PY and VK3NX. The digital signals showed around 40 Hz of spreading which is an indication of rain-scatter.

Rex believes the most likely answer is that while the duct that developed over Bass Strait had sufficient leakage to allow propagation at 144 Hz it trapped the signals at 1296 MHz and 10 GHz. However rain-scatter which is far more effective at 10 GHz allowed intermittent propagation on this band. Rex has in separate tests from home with Chas VK3PY found that while it is weaker, rain-scatter does also work at 1296 MHz. Thus these initial results suggest that rain-scatter may well be worth exploring as a means of working microwave bands from Southern Tasmania over the mountains in central Tasmania to VK3.

Please send any Digital DX Modes reports to Rex VK7MO

The Magic Band – 6 m DX

Brian Cleland – VK5BC

February proved to be an interesting month with the finally the sun becoming active and the solar flux going above 100. It resulted in some good sporadic ‘E’ openings as well as some TEP openings to Japan.

After a few quiet weeks some good ‘E’ opening occurred on the 6th & 7th February. The day started early on the 6th with Brian VK4EK working David VK3AUU and Frank VK7DX, then David VK5AYD working Mark VK2AMS followed by Andy VK6OX. While this was happening Bob ZL1RS was working Warwick E51WL in the North Cook Islands. A little later in the morning stations using WSPR started to get strong decodes between VK5 and VK2, 4 and Brian VK5BC worked Mark VK2EMA, John VK2FAD & Phil VK4FIL. Following these contacts the band opened to VK6 from VK5 and Brian worked VK6OX and Wayne VK6JR completed a contact with Mark VK2EMA. Igor VK6ZFG in Perth also worked Michael VK6BHY in Karratha.

The 7th February saw a good early morning opening from VK4 to VK3. Adam VK4CP, Denis VK4ACE, Phil VK4FIL & Wayne VK4WTN worked several VK3’s including VK3’s AKC, AIG, and FZ. Adam also worked Ted VK2ARA. The band then opened to VK5 with Brian VK5BC working vk2 & 4 stations. Meanwhile further north John VK4FNQ in Charters Towers was working VK4 Brisbane stations as well as VK2XN & VK7DX.

The 9th February also turned out to be a very interesting day. At about 0530UTC Denis VK4ACE working several JA’s including JA2LRE, JA1RJU, and JT1CUL then shortly after that Brian VK5BC working JA2LRE, JA6EXN, JG2LEB & JA3APL, the 1st JA opening to VK5 for 12 months. Following these contacts the band opened from VK5 to VK4 with Garry VK5ZK working Wayne VK4WTN.

David VK5AYD in Coober Pedy worked John VK6JJ and Rick VK6XLR on 12th Feb.

14th February started with Wayne VK4WTN working Norm VK3DUT early morning. Then later in the morning the band opened from northern VK7 to VK5 with Peter

VK7PD in Trevallyn working Gordon VK5KAA & Brian VK5BC. Brian then worked Norm VK7AC, Joe VK7JG & Frank VK7DX. Later in the day the band opened from VK5 to VK6 and Brian VK5BC worked Kevin VK6AB. Later that evening Mark VK8MS in Darwin worked Willem DU7/PA0HIP.

On the 21st Feb Joel KG6DX Guam worked several VK4 stations including Wade VK4WM, Wayne VK4WTN and Steve VK4KUS.

From around the 22nd February openings occurred on many days from VK4, northern VK6 & VK8 to Japan, particularly good days on the 23rd, 24th & 25th. Brian VK4EK in Sapphire reports hearing JA's on the 22nd and working 11 x JA's in the 1, 2, 3, 4 call areas between 3.00pm & 4.00pm local time on the 24th and on the 25th the band opened again around 3.00pm and this time working 17 x JA stations in the 1, 2, 3, 6, 7, 8 call areas and at one point had a dog pile going 50.140MHz with many reports of 5/9+.

Wade VK4WM reports good openings on the 22nd working 2 x JA's on SSB and 8 on CW and on the 24th working a further 8 x JA's on SSB and 12 on CW most with 5/9+ signals.

Phil VK4FIL in Brisbane was very pleased to report his 1st JA contact with JH1WHS on 24th February, well done Phil.

28th Feb Andrew VK4KAY in Mackay had some interesting mobile contacts working both Remi FK8CP and JA3EGE whilst mobile and Glen VK4BG in Torquay north of Hervey Bay also worked FK8CP & JA3EGE.

It will be interesting to see what the Equinox produces.

Please send any 6 m information to Brian VK5BC