
VHF/UHF – An Expanding World

David Smith VK3HZ
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Weak Signal

David Smith - VK3HZ

The central east coast of Australia seems to be having a run of good conditions to the east, to the land of the ZL. According to Gordon VK2ZAB, there have been at least 19 days this season in which contacts from Australia to New Zealand, on bands 2 m and higher, have occurred.

On 14/2, Gordon VK2ZAB and Ross VK2DVZ worked Nick ZL1IU on 2 m. The Auckland 2 m beacon was audible to Gordon. John VK2TK could also hear the beacon, but couldn't hear Nick.

On 21/2, VK2DVZ worked ZL1IU on 2 m, 70 cm and 23 cm. VK2FG and VK2TG also worked ZL1IU on 2 m. VK2DVZ also worked ZL1TPH/P on 2 m.

On 22/2 Doug VK4OE portable on Mt Coot-ha using a halo on 2 m worked Nick ZL1IU. As he was departing, Ron VK4KDD arrived with an IC-910 and 5WL(!) yagi and received a 5/7 report. Bill VK4LC, from his home QTH, also worked Nick.

On 4/3 VK2ZAB worked ZL1IU on 2 m and 70 cm, and Bob ZL3TY on 2 m. VK2TK also worked both ZL stations on 2 m, Nick several times during the day.

Things haven't been totally quiet in the south of the country either. On 16/2, a high-pressure cell settled over the Bight producing several days of good conditions from the southeast to the southwest of the continent.

On the morning of 16/2, the 70 cm VK6RST beacon near Albany was heard in Melbourne, peaking to S3. No sign of the 2 m beacon. Daryl VK6KDC worked Charlie VK3FMD and David VK3HZ on 2 m with attempts on 70 cm not succeeding. Wally VK6WG also appeared and worked many Melbourne stations on 2 m. That evening, Wally re-appeared on the band having done some hasty repairs to his 70 cm setup, unfortunately without success.

On 17/2, the 2 m VK6REP beacon from Esperance was audible in Melbourne, reaching S5 at this QTH. Wally VK6WG was again working into Melbourne.

For the next 5 days, conditions between Adelaide and Melbourne were excellent with many stations working on 2 m and 70 cm.

On 19/2, Gordon VK2ZAB in Sydney worked Phil VK5AKK in Adelaide on 2 m. A contact of this sort is a rare event because of the difficult path between the two cities.

Morning Activity / Aircraft Net

For some time, morning activity up and down the east coast utilising aircraft enhancement has been split between two frequencies. On weekdays, 144.1 MHz was the calling frequency while on weekends, this shifted to 144.2 MHz.

As the result of an informal poll on the VK-VHF email reflector, it was agreed by a large number of the operators involved that the calling frequency for this activity be changed to 144.2 MHz on ALL days.

As always, once a contact is established, operators are encouraged to QSY off the calling frequency for any sort of extended QSO. This is especially important with aircraft enhancement because of the short duration of the openings.

Beacons

The VK3RLP beacon on 2403.532 MHz at Frankston, Victoria is back on air. It is running one watt into 4 corner reflectors on top of the South East Water storage tank overlooking Port Phillip Bay and Melbourne. The antennas are pointing towards Mt Gambier, Perth, Sydney and East Gippsland. Signal reports are requested to John VK3YTV at mlejohndi@bigpond.com

It seems that a mysterious technical glitch is causing the new 70 cm VK3RGL beacon near Geelong on 432.530 to drift gradually upwards in frequency – 1.6 kHz in 6 weeks. Some adjustments have been made and Chas VK3BRZ would like reports, particularly from those who can accurately measure its frequency, by email...

Digital Modes

Rex Moncur – VK7MO

Joe Taylor K1JT has released a new version of WSJT (version 4.5.1) with enhancements for FSK441 and JT65. It can be downloaded at the following site: <http://pulsar.princeton.edu/~joe/K1JT/>

FSK441 now has Forward Error Correction (FEC) designed to reduce the number of false decodes. As well the former single tone special messages for R26, R27, RRR and 73 are now produced by double tone messages that give around 6 dB improvement in decoding with a significant reduction in false decodes. The program now has three FSK441 sub-modes as follows:

FSK441A: the original mode that uses three tones for each text character and has no provision for FEC. It uses single tones for special messages.

FSK441B: this uses four tones per text character to allow FEC and uses dual tones for special messages

FSK441C: this uses seven tones per text character and allows much more robust FEC and also uses dual tones for special messages.

The penalty of the FEC sub-modes is that FSK441B requires a 66% longer ping and FSK441C 133% longer, but this can be offset by setting the detection levels lower as the FEC gives far fewer false decodes. Joe Taylor has suggested that FSK441B will be the best mode for 2 m where pings are short and that FSK441C might prove best for 6 m where pings are longer. Initial tests by VK operators indicate that the dual tone messages are a significant improvement and support Joe Taylor's view that FSK441B has an advantage for 2 m but more extensive testing will be required.

JT65 has been up-graded with what Joe Taylor calls a "soft" decoder that provides a 1 dB improvement. 1 dB is significant on EME and well worth it. Leigh VK2KRR has been using the new version on EME and is impressed with its performance. JT65 also has sub-modes called JT65A, JT65B and JT65C. JT65A is the more sensitive but requires very good frequency stability, JT65B is more tolerant of frequency instability and JT65C even more so at the expense of about 1 dB in sensitivity.

Joe Taylor is seeking feedback on the performance of the A, B and C of the sub-modes with a view to reducing the numbers of sub-modes in future versions or at least reaching a consensus as to which sub-modes should be used on each band.

2 m & 70 cm FM DX

Leigh Rainbird - VK2KRR

Thankfully, the conditions in February for Australia's southern FM DX stations were quite a bit better than the second half of January, which was a shocker. Things are still relatively quiet for our more northern counterparts in Queensland while they wait for the beginning of their dry season and a return to more stable weather.

There have been a number of longer distance paths in February as well as very strong shorter paths, and a monster duct, which was outstanding. There were a number of new stations not usually heard on the DX scene this month, which is good to see.

One issue of concern lately has been interference on the FM voice simplex frequencies by applications such as IRLP, Echo Link and other linking and repeating functions. This is particularly an issue on 146.500 and 439.000 the National FM Simplex Voice Calling frequencies. Could people please be aware of this and remind others in your club or locality.

February was a really good month for 2 & 70 FM DX and I am having to really cut back on many contacts and reports or it could go on for a number of pages.

On the 7th and 8th of February, a few simplex contacts noted, Les VK3TJ in Mildura worked VK2KRR on 146.5 @ 466 Km. Graeme VK5GH near Mt Barker S.A worked VK2KRR on 146.5 @ 750 Km, good signal from Graeme at a 5/7.

On the Sunday morning VK2KRR had an interesting QSO via the Canberra 146.950 repeater with John VK2FAD near Newcastle. Interesting because it is quite rare to hear a station on the coast north of Sydney getting into the Canberra repeater. John is approximately 350 Km from Canberra and was running an omni directional antenna, and being down in a coastal area and having to come up over the mountains is a good effort.

But, meanwhile, the same morning, on the other side of the country, VK6 operators who were alert and awake were in for another morning of terrific DX action, courtesy of Brian VK5UBC in Gawler and also VK5KFB.

Brian was out to relive the magnificent effort from Boxing Day 2003. He did that and more! Not only did Brian work back into the Boddington repeater @ 2062 Km on 147.250, he also worked to the Katanning repeater on 147.000 @ 1950 Km. And later to the Mandurah 146.900 repeater on Mt William, which re set the VK5 Division repeater record to 2102 Km, a great effort.

Eventually, as Western Australia got out of bed, Brian was able to work via the repeaters with VK6IQ, 6ZKO, 6KZ, 6HRC, 6ZCR, 6ZGU. VK5KFB believed to be near Adelaide was also able to work to Boddington. Again no signals were copied on reverse.

It certainly is amazing to hear a signal come in to your local repeater from a great distance away, a 2000+ Km distance even more so. When you think of how far that signal has travelled, over a path that is rarely present, and that signal is preserved well enough along its travels to present itself just like a local signal to the repeater, its absolutely fascinating.

Further on into the month, a duct began to be workable, beginning on the 15th. This duct would hang around for almost a week and got better the longer it stayed. The conditions finished up around Saturday the 21st of February, and have been described by some as the best conditions this summer season. Some massive signals were experienced, some very long paths worked by some, and some people were working to places they never thought possible.

I will just give a brief summary here as there was so much going on. Lucky I did not get many reports from others about this week's activities or they'd never fit in the magazine.

On the morning on the 16th, VK5UBC was able to work VK2KRR on 439.000 establishing new VK2 and VK5 Division FM DX records for 70cm @ 764 Km.

Later that evening VK5UBC worked to the Albany repeater on 146.725 a distance of 1900 Km. First time to Albany for Brian, who worked John 6KJS and Brian 6YUA/m Albany via the repeater.

Showing just how good conditions were in the evening of the 17th of February were a group of operators who were all able to congregate on 147.275 the Otway Ranges repeater. These stations were VK3JNY, 3XOR, 3VTX, 3TJS, 2KRR, 5MM, 5KGP, 5ACY and 5UBC. Graham VK5KGP is located in Victor Harbor and was working the Otways repeater with an antenna mounted inside his house! The distance is around 550 Km.

After this 5UBC made another series of contacts to the west. Brian worked to the Albany repeater with Frank VK6DM and then was able to easily work Frank on 146.500 simplex with up to 5/9 signals over the 1900 Km path. New VK5 Division 2 m simplex record.

Morning of the 18th, big signals out there. A number of stations were worked simplex. Brenton VK5JBJ at Meningie was a 5/6 on 2 m @ 702 Km, 3.43 am. Brenton was also worked on 70 cm also 5/6 signal. Rob VK5MM at Mt Barker was 5/7 on 2 m. Brian VK3UBC at Mildura was 5/5 on 2 m. Dion VK7YBI made it to the Barossa Valley 2 m repeater at around 11.45 am and made a new repeater distance record for himself @ 947 km. Amazingly conditions lasted till about 12.15 pm here!! before it suddenly was lost and all was quiet again.

On Thursday 19th there was a Monster Duct! This would have to be the best duct opening I have worked. I wont go into how many repeaters were coming in, but lets just say, most repeaters in VK3 and VK5 on 2 m and 70 cm were full-scale signals or very close to it.

List of simplex FM contacts worked here before I went to work - VK5MM, Mt Barker @ 747 Km on 2 & 70; VK3TJ, Mildura @ 466 Km on 2 m; VK5JSR near Barossa Valley @ 770 Km on 2 m; VK3MTV, Mildura @ 466 Km on 2 & 70; VK5UBC, Gawler @ 764 Km on 2 & 70; VK5ZLT, Keith @ 614 Km on 2 m; VK3UBC, Mildura @ 466 Km on 2 & 70; VK5XE, Claire @ 791 km on 2 & 70.

There was transmissions left right and centre and where to turn to next was a problem. There were contacts I heard that I could not believe I was hearing. I noted VK3MTV, VK5UBC and VK3LY into Wagga 2 m. VK3MTV in Mildura and VK5UBC in Gawler made it to one of the highest repeaters in Australia being Canberra's Mt Ginini 146.950. I heard them both talking with VK1OD. I also heard stations in Wagga and Young NSW, getting to Barossa Valley SA.

The simplex contact on 439.000 between VK5XE and VK2KRR reset the 70 cm FM DX records again for VK5 and VK2 to 791 km.

In the morning of Friday the 20th there was a shift in conditions in eastern NSW. Steve VK2ZSZ in Queanbeyan worked Graham VK2GRB in Scone via the 2RDX repeater in the Western Blue Mountains. Steve was also able to get to Rylstone, Young, Grenfell, and Goulburn.

Ian VK2XB who was mobile near Young, was amazingly able to work to the Rylstone repeater over a mountainous 230 Km path.

VK2KRR worked as far as the Walcha repeater @ 610 Km, also to Knight's Hill near Wollongong, the Southern Highlands and Mt Bindo.

Alan VK2KAW in Wagga also had a similar coverage area to VK2KRR. It was quite interesting to see the extent of the propagation.

On the final day Saturday the 21st, signals again were brilliant. Many stations were able to work each other simplex. Some of the more difficult simplex contacts into VK2KRR near Wagga were from Jim VK5AJW at Cowell, up to 5/9 on 146.500 @ 950 Km. VK5KCX, 3LY, 3XQA/p were also worked on 2 m. Also 3AEF, 5UBC, 5MM, 3JGL were worked on both 2 & 70.

Well done to Rob VK1ZQR in Canberra who is always listening out to the west and finally got a path into Murray Bridge and possibly other repeaters around 900 Km. VK5UBC also worked the Canberra 146.950 repeater but the two failed to make it on simplex.

No doubt there were a lot of other contacts that occurred that I did not have a chance to listen to or was never told about. Well done to everyone and keep up the good work.

That's about it for this month. Please remember to send through any 2 & 70 FM DX reports to Leigh VK2KRR.