
VHF/UHF – An Expanding World

David Smith VK3HZ
Leigh Rainbird VK2KRR

Weak Signal

David Smith - VK3HZ

Welcome back from the season of excess – not only excess of food, drink and merriment with the relatives, but also an excess of substantial and diverse propagation conditions. It's almost a shame that AR takes a break over the Christmas / New Year period as it's generally one of the most busy times for VHF/UHF openings.

Tony Mann (VK6/SWL) reports that the first Indonesian tropo opening to Perth was observed late from 1600Z 12 November to 0015Z 13 November. He was receiving the 20-400 kW ERP analog UHF TV carriers from central Java - on 495.25, 607.24976, 623.2493, 655.25025 and 671.24956. The opening was almost missed because the usual indicators, Geraldton TV on 555.224 and ABCRN FM on 99.7, were not very strong. No reports of any contacts have been received.

The first VK2 - ZL contact for the season occurred on 5 December. Ross VK2DVZ in Taree reports that at 0750Z, he worked Nick ZL1IU on 2 m with signal reports 55 each way. The opening continued until Nick went QRT at about 0745Z. At 0801Z they exchanged reports of 51 each way on 70 cm. QSB was significant on 70 cm and they had to work hard to make the contact.

On 15 December, a widespread Sporadic E opening occurred between VK8 and VK2/3/5. Leigh VK2KRR in The Rock (near Wagga Wagga) returned home from work late afternoon, switched on and found he was hearing the Alice Springs 6m beacon. He then listened on 2 m and, to his surprise, found the 2 m beacon loud and clear. He immediately rang Jeff VK8GF at Alice Springs who dropped tools and headed for home.

In the meantime Leigh posted a message on the VK-ZL logger to inform others and called Brian VK5UBC. Leigh found he could access the Alice Springs 2 m FM repeater and made contact with Jeff as he was driving home. Leigh also worked Charlie VK8HW on the repeater. Charlie could actually hear Leigh direct on his indoor dipole – impressive for over 1800 km.

Jeff arrived home and called on 144.1 SSB. His first contact was with Leigh who was receiving Jeff 5/9+20. Jeff then managed to work Rob VK1ZQR in Canberra (Jeff's 1st VK1 on 2m), David VK3HZ in Melbourne, Gary VK5ZK at Goolwa 60km south of Adelaide and Brian VK5UBC at Gawler 40km north of Adelaide.

In Melbourne, the VK8 2 m beacon was first heard at 0540Z up to S5. It remained audible - with some gaps - until 0655Z.

On 18 December, there was another Sporadic E opening, this time from VK4 to VK2/3. At around 0550Z, Leigh VK2KRR managed to work VK4ABW (Townsville), VK4MIK (Butchers Creek) and VK4FNQ (Charter Towers). Trevor VK3VG in north central Victoria reports working VK4 FNQ (5/9), VK4ABW (5/9) and VK4MIK (5/2). Doug VK3UM reported hearing some voices from just north of Melbourne, but did not manage a contact. Joe VK7JG also reports hearing snippets of the VK4's.

On 24 December, Andy VK2AEH worked Nick ZL1IU on 2m. John VK2TK also worked Nick at around this time, with signals peaking at S6 (over S3 noise).

On 31 December, Nick ZL1IU was in the thick of the action as the bands opened between ZL and VK2/3/4/7. Oddly, no other ZL stations could be heard in VK3.

Robbie VK3EK near Bairnsdale was one of the first VK3's to work Nick, on both 2 m and 70 cm and continued to hear him for over 2 hours. Stations who managed contacts on 2 m with Nick were VK2FZ (also 70 cm), VK2AWD, VK2AH, VK2BHO (also 70 cm), VK3DMW, VK3EK (also 70 cm), VK3ZYC, VK3KAI, VK3UH, VK3DUT, VK2BZE, VK3WRE, VK3BBB, VK2FHN, VK2BHO (also 70 cm), VK2DVZ, VK2EAH, VK2TG, VK2ZT, VK3TDV, VK3EBQ and VK3VHF

The most westerly station worked on 2 m was David VK3QM in Lara. They also tried on 70cm but, apart from hearing traces of each other, were unable to complete a contact. Ron 3AFW and Andrew 3KAQ in Melbourne heard traces of Nick on 2 m, but no contact was achieved.

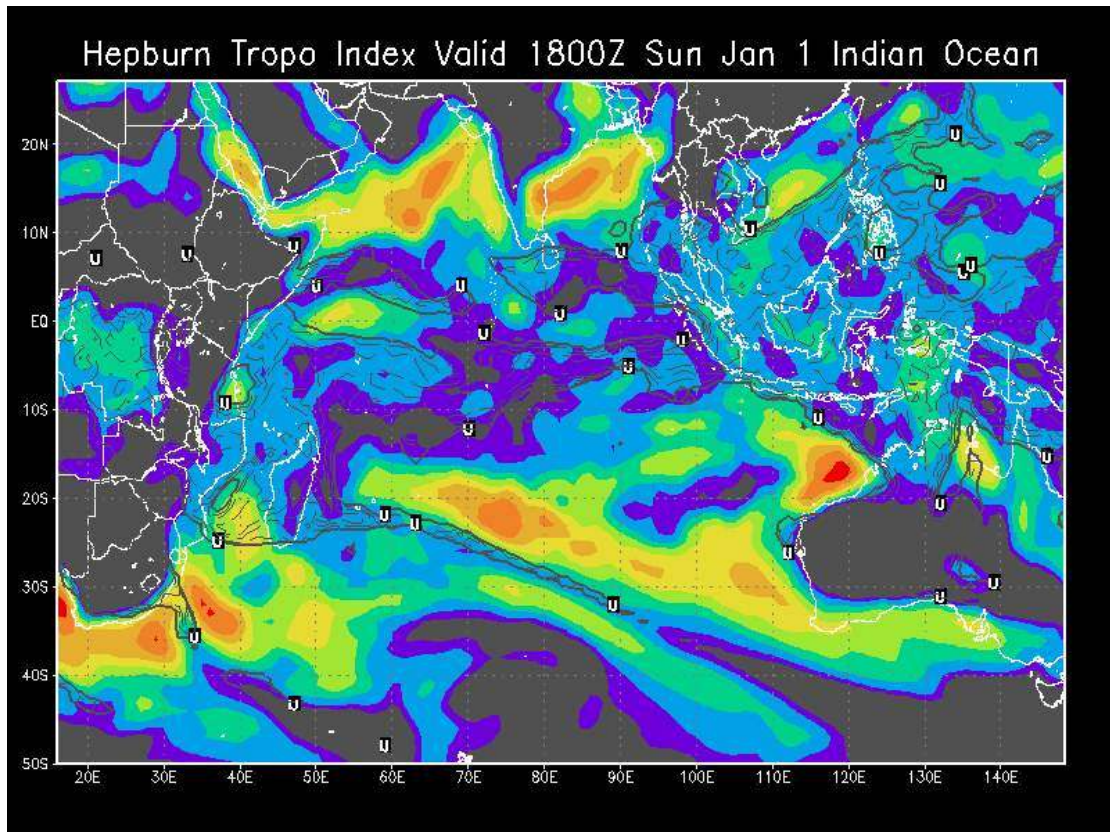
Rex VK7MO reports that, on New Years Eve, he returned home to see on the logger that Robbie VK3EK had been working into ZL. A quick CQ and Nick ZL1IU was worked 5/1 both ways on 2 m for a new VK7 record at 2431 km. Rex asked Nick if he would be around for a while as he would like to try 70 cm and had not rebuilt his 70 cm yagi since returning from Christmas Island. After 15 minutes Rex told Nick it was taking longer than he expected and by this time signals had risen to 5/9 +10 on 2 m. Nick kept saying very firmly "hurry" while continuing to talk to Adrian VK2FZ and Jim VK3ZYC on 2 m. Another 15 mins went by and still no 70 cm antenna with Nick now yelling "hurry" as 2 m signals reached 40 over 9. Another 10 mins and the 70 cm yagi was finished and a 5/9 70 cm contact completed for another VK7 record. Rex then asked Nick if he had 23 cm to which Nick replied he had a yagi in the shed and could set it up on a pole outside. Nick was outside holding the antenna, leaning inside the window to tune the rig and while no contact was completed signals were copied each way on 23 cm at S2. All goes to show, one should have everything prepared in advance for the tropo season.

Nick comments that "Rex VK7MO blew me away when he came up on 2 m and we also had s9+ sigs on 70 cm". He also said that signals from VK4 were also evident, but he was concentrating on the rarer southern stations. The VK3RGI beacon was huge to him at times, audible over several hours. The beacon at Nimmitabel was coming in well at times also.

The busy times continued on 2 January. Enhanced tropo conditions across the south of the country had been evident from early in the morning with the Albany 70 cm beacon audible as far east as Melbourne and to Leigh VK2KRR. Unfortunately, the 2 m beacons at both Esperance and Albany were temporarily off-air. At 2350Z, Colin VK5DK in Mount Gambier worked Wal VK6WG in Albany.

Then, at 0010Z, Leigh VK2KRR managed to work Wayne VK6JR near Busselton (south of Perth) on 144.1 over a distance of 2933 km. That distance exceeds both the current VK2 and VK6 records. Leigh and Wayne first made contact on 6 m, then Wayne put up a carrier on 2 m that Leigh was most surprised to hear. Wayne's 30 W / 9 elements received a 5/2 from Leigh while Leigh's 400W / 4x17 el gained a 5/5. Wayne then rapidly drove up to a nearby high point to try 70 cm, but no luck with that. Gary VK5ZK also managed to work Wayne – the path from Leigh to Wayne passing almost directly over Gary's QTH.

The Hepburn chart showed a straight line of tropo enhancement virtually from Leigh's front door to Wayne's QTH. However, looking at the Indian Ocean chart, it appears that the duct could have continued much further out across the ocean, almost to Mauritius. What chance a VK(2) to 3B8/9 (Mauritius) contact?



To add to the confusion, at the same time, a Sporadic E opening was in progress between VK2/3/5 and VK4 (Yeppoon and Charters Towers). The opening was fairly unusual in that enhancement would occur to a particular (very localised) location only for brief periods – almost like extended meteor scatter enhancement. Many stations reported hearing other stations calling, only for the enhancement to disappear before a contact could be made. Others, not too far away, would hear nothing.

Several theories have been put forward to explain the very sporadic nature of the enhancement. Ron VK3AFW wonders if meteors passing through the E layer were causing extended E's ionisation, but only for several minutes after the meteor had passed. Denis VK3ZUX noticed that on the Weatherzone site, there was a significant lightning storm in progress around the mid-north of NSW – at about the mid path of the enhancement. There is a theory that sprites rising upwards from a lightning storm into the E's region can cause short-term sporadic E enhancement.

On 10 January, a high-pressure cell caused significant tropo enhancement between VK5 and VK7. Brian VK5UBC reports that from his holiday house at Corny Point, he worked VK7YBI and VK7AC, both on the north coast of Tasmania.

New 2.4GHz ATV Record

ATV doesn't get much of a mention in this column, but it is alive and well in many areas of the country. Mark VK5EME has developed many easy-to-build kits that can get you onto ATV on any band from 70 cm to 10 GHz, relatively easily. Check out his web site for more details: www.minikits.com.au

Jack Swart VK2TRF reports that he worked Jonathan Berry VK2TAS on 18 December for a new ATV distance record for the 2.4 GHz band. Station locations

were VK2TRF near Mt. Warrawolong, and VK2TAS at Mt. Gibraltar. The distance was 173.9 km.



“Both transmitters comprise G1MFG 2.4GHz exciters driving ex-MMDS PA’s producing upwards of 20 watts. The dishes are modified commercial wireless LAN antennas giving about 22dBi of gain. The receivers are standard G1MFG modules which are very sensitive but prone to interference on this band from AV senders and wireless LAN systems. Mercifully we did not encounter any interference due to our remote location but Jonathon, perched right on top of Mittagong, suffered some.

We still managed 2-way colour QSOs with audio. Digital video tapes were recorded at both ends for later study. Dave VK2GIO received Jonathon VK2TAS signals from Mt Gibraltar but nothing was seen from Jack VK2TRF except by Jonathon on Mt Gibraltar.

Thanks to Dave VK2GIO and Rod VK2BQJ for their patience and help in this endeavour. Their skill and dedication to me (a newbie licensed since 24/12/04) is a great example of the amateur spirit. Also, many thanks to the Westlakes Radio Club for providing dedicated amateurs and their 4WD vehicles to enable us to access the remote location used. Amateurs involved at the Newcastle end were Jack VK2TRF, Dave VK2TDN, Steve VK2UD, Pete VK2YGM, Pete VK2TPW, Karen VK2ZKG and Matt VK2ZMT. Irene, VK2YGM's XYL, supplied a fantastic lunch for all”.



Annual Gridsquares Table (AGT) Competition

Adam VK4CP – creator of the very useful VK-ZL Logger site (www.vklogger.com) - has initiated a new competition in the hope of generating some greater activity on the VHF/UHF bands.

As many will be aware, there is an established Gridsquare League Table, maintained by Guy VK2KU on behalf of the NSW VHF DX Group. This table is an on-going and cumulative record of the number of gridsquares worked by the entrants on the VHF, UHF and microwave bands.

Adam has created an annual competition, where the slate is wiped clean at 000Z on 1 January each year. Apart from that difference, the rules are virtually identical to those for the Gridsquare League Table. Adam's intention is simple - to stimulate activity by making everybody start on a level playing field each year.

Adam has created a web page for the competition – www.vklogger.com/agt As of 13 January, 35 stations have already registered their tallies on the page. Full rules of the competition may also be found there.

Please send any Weak Signal reports to David VK3HZ

Digital DX Modes

Rex Moncur – VK7MO

Waldis, VK1WJ, and Graeme, VK3GOM, have been testing a number of digital modes for use on 2 metres via Aircraft Scatter between Bendigo and Canberra on signals too weak for SSB. The signals exhibit rapid fading that seems to result from interference between the signal scattered from the aircraft and tropospheric scatter. The choice of mode is a compromise between being fast enough to cope with the

rapid fading while having sufficient sensitivity to take advantage of the weaker signals. Their experiments have concluded that the preferred mode is PSK63F.

Waldis has information on his web site (www.geocities.com/wilgonis/digiar.htm#AE2) on how to obtain the programs for various modes and the QSO procedures that are being used.

If you are interested and within Aircraft Scatter range of Canberra or Bendigo (900 km) you are welcome to contact either Waldis VK1WJ: ilgonis@netscape.net or Graeme VK3GOM: vk3gom@yahoo.com.au.

Please send any Digital DX Modes reports to Rex VK7MO

The Magic Band – 6 m DX

Brian Cleland – VK5UBC

December began with good openings on the 1st & 2nd December down the eastern seaboard including VK7 and northern Queensland. As well as the contacts between the eastern states a good opening to JA occurred from VK3 & VK7 on the 1st December with another opening from VK3 to JA on the 2nd. On the 2nd December South Aust got into the act with openings to VK4 & 2 and again on the 3rd December. The evening of the 2nd the band was still open from SA to Queensland at 11.00 pm and was again open at 8.00 am next morning the 3rd December. Jeff VK8GF at Alice Springs was active on the evening of the 2nd and worked many VK3 & 5 stations. On the morning of 4th December the band opened between VK5 & ZL and in the afternoon a brief opening occurred to JA with Brian VK5UBC working JA2DDN.

The 1st couple of weeks of December saw openings on most days but conditions were very unsettled and varied rapidly. A good opening did occur though from VK2 to VK5 on 7th December, which extended from VK2 to VK6 in the late afternoon and early evening.

On the afternoon of the 13th December Col VK5RO & Brian VK5UBC had an interesting contact with Mike VK3BDL mobile on the Nullabor Plains near Caiguna approx 500 km past the SA border who was driving to Perth to see the test cricket. Signals were 5/9 and they maintained contact for over 1 hour including going to FM with again 5/9 signals. Mike was running 100 W to a vertical.

In the 2nd half of December the band settled with good openings occurring on most days. VK4 seemed to get the best of conditions with openings to the south and VK5. The FK8 beacon was audible on many days in this period in VK2, 3, 4 & 5 but unfortunately very few FK8 stations were heard or worked. Wayne VK4WS who was portable at Nambour much of December, reports working Patrice FK8HA using an FT817 and a 5/8 2 m whip on the 10th December with a 5/7 report. Wayne also worked Henri FK1TK on the 20th December and Michel FK8GX on the 24th, both these contacts though with 100 W and an end-fed 6 m 1/2 wave vertical.

Good openings to ZL occurred on many days in December from all eastern states and VK5. As usual Norm VK3DUT worked ZL's on a regular basis but good openings extended to VK5 on the 21st & 29th November and on the 3rd, 13th, 14th and 26th December. VK2 had regular openings to ZL in December and VK4 got into the act on several occasions with John VK4FNQ at Charters Towers working ZL's on the 17th & 21st December.

Good VK6 openings to VK4 happened on the 30th December and 6th January with Wayne VK4WS working VK6RZ, AB, IP, JJ, RO, DU & HK.

Had a note from Bill VK3DOU who made his 1st VK6 contact with VK6IP using CW on 29th December, well done Bill!

Had an interesting contact with VK7JG/m near Tomahawk on the NE tip of Tasmania from my holiday QTH, Corny Point (PF85mc) on the 7th January, Joe's signal was 5/9+++ from his car.

As I reported in the December notes the Barossa beacon VK5RBV on 50315 has been fully operational from early December. Reports have indicated that it is being well received all over Australia.

Please remember to send any 6 m information to Brian VK5UBC

2 m & 70 cm FM DX

Leigh Rainbird - VK2KRR

A bit behind after the Christmas break, so this edition covers DX happenings from November and December. There was quite a bit of good DX over these months, but here is a compacted summary.

November was fairly quiet in most parts. A few tropo openings were reported in the countries SE and Queensland, but these were short lived and weak.

In December, the first real opening occurred on the 05/12 in the southeast. I was able to get to the majority of the Adelaide area repeaters such as Murray Bridge, Lobethal, Crafers, Barossa Valley, all around 750 km. I found I could also access Central North at 833 km, Port Pirie at 867 km and Cowell at 961 km.

From 10/12 to 15/12, good conditions were available in Queensland along the coast and ranges. Mike VK4MIK on the Atherton Tablelands, worked into Hodgson Range at 640 km, Blue Mountain at 581 km, Monto at 951 km, Mackay at 535 km, Hayman Is at 451 km, Blackdown Tablelands. Felix VK4FUQ at Ingham has also been very active and working to similar locations as Mike.

A rare Sporadic E opening on the 15/12 saw 146 MHz signals pass between Alice Springs and areas of the south east. All contacts were on SSB, but I was able to work into the Alice Springs repeater on 146.950 VK8RCA. Signals had some bad QSB at times, but QSO were achievable. The distance to the repeater from here is 1804 km. I was able to work via the repeater with Jeff VK8GF mobile in Alice Springs, I could hear Jeff on reverse, and also Charlie VK8HW at Alice Springs who reported being able to hear me on reverse with his indoor dipole antenna. Unfortunately I could not hear him.

Again on Sporadic E, Felix VK4FUQ at Ingham got a rather sporadic 2m opening down the coast. Felix made it to the Glen Innes repeater on 146.950 VK2RNE. He made a brief contact with Mike VK2FMB in Glen Innes. Felix mentions that Garry VK4ABW also got into the same repeater from near Townsville.

While on a cruise on the "Pacific Sun" in mid December, Rob VK2MT encountered a major VHF opening between Noumea, where the ship was moored, back to VK2 & 4. Between a hilltop above Noumea and also on board the ship, using just his VX-7R handheld, he was able to access many VK2 & VK4 repeaters. At one stage, every repeater frequency from 6625 to 7100 returned one, if not two or three repeater tails when triggered.

Contacts were made via the following repeaters: VK4RAX Brisbane, VK4RSC Sunshine Coast, VK4RRC Redcliffe, VK4RGG Gold Coast and VK2RGL Great Lakes.

Stations contacted were VK4KOR, Spiro VK4IBR, June VK4SJ (M), Wayne VK4TWD, Bernard VK4KAC, Ray VK4YRS, Phil VK4KVK, Lee VK4KLA, Frank VK3DYE (P4), Greg VK4AML, Graham VK4JGH, Peter VK4TGV (M), Allan VK4HDM, Warwick VK4NW, Garry VK2UNI, Keith VK2AT & John VK2SWR. Signal strengths varied from S2 to S9, with some signals being saturation S30+, with many of these stations also being contacted via simplex.

The only thing that stopped more contacts was a flat battery, but that was after more than 2 hours of contacts.

Mpeg recordings were made on his digital camera of many of these contacts which helped with logging later on, plus to prove to the many doubters that these were genuine contacts. He has already e-mailed some of these recordings to those who have supplied their e-mail details.

The furthest repeater he heard and was able to partially access was his home repeater VK2RMP at Wollongong. Unfortunately, no contact was made. Distances achieved varied from 1475 km through to 2056 km.

He also notes that the FK8ZHA 2m repeater appears to require audio to access, not just carrier.

Big tropo opening in the SE on the 19/12. Very big signals from the areas surrounding Adelaide. Full scale signals from the main repeaters at 750 km. Worked VK5PO at 5/9+50 dB signal from Eden Valley 738 km on 146.500. Brian VK5UBC was able to access Macedon, Bendigo, Shepparton, Canberra, Ararat and Grampians.

On the 30/12, Felix VK4FUQ worked into the Newcastle repeater and spoke to VK2FA. Signals were weak to S5 with QSB. The Sporadic E only lasted for around 20 mins.

There is DX out there for those that want it. Have fun.

Please remember to send through any 2 & 70 FM DX reports to Leigh VK2KRR