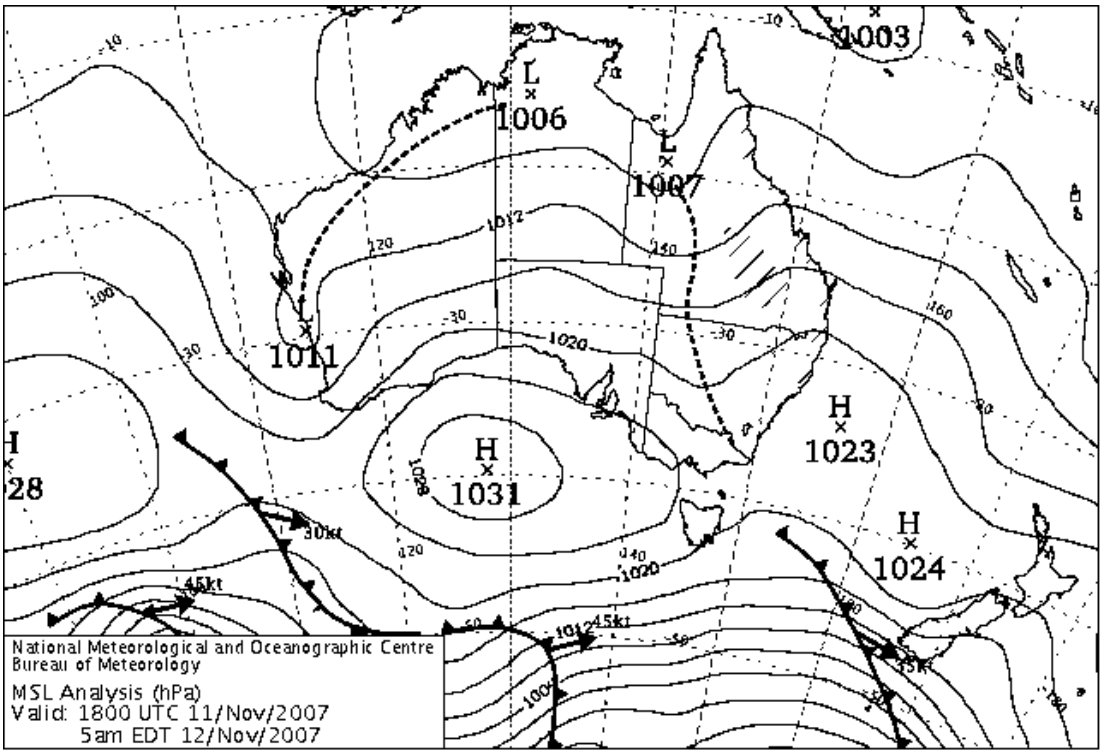
VHF/UHF – An Expanding World

David Smith VK3HZ

Weak Signal

David Smith - VK3HZ

On the 11th November, a large high-pressure cell moved into the Bight causing excellent conditions across the south of the country.



On the morning of the 11th, Brian VK5BC and Phil VK5AKK both reported hearing the VK6RST 2 m and 70 cm beacons on Mt Barker near Albany. As per usual, the 70 cm beacon was a lot stronger than the 2 m one, due to the higher power and directional aerials used on 70 cm. Rob VK6JRC, who had just moved to the south coast of WA was watching the reports on the VK/ZL Logger with interest. He takes up the story:

I only moved the Thursday before to my new QTH at Denmark - approx 50 km west of Albany in WA.

I had seen the Hepburn charts on Friday and commented to others over here that the conditions could be good on the Sunday.

The day was spent unpacking moving boxes and some work out in the garden. I checked my e-mails around lunchtime and saw that stations in Albany & Bunbury had received the WIA News Broadcast via the 146.900 MHz Mt Gambier repeater. VK Logger also had stations receiving the Mt Barker (WA) beacons, about 50 km north of me.

In the afternoon I had to make a trip to the hardware store to pick up some supplies. On the way out I noticed my portable 2-element Moxon antenna on top of a box in the carport. On the spur of the moment, I picked it up and put it in the car, deciding

that I would detour via the beachfront car park on the way to the hardware store to see if there was any propagation about on 2 metres.

To my surprise, I could hear the Mt Gambier beacon (144.550) at 4x1 with the antenna on the ground, which came up to about 5x2 with the antenna at head height. I also spoke to a couple of locals on the Albany repeater who had been working into repeaters in VK5 and VK5's had been working into the Albany repeater.

In the true spirit of amateur radio, I put the trip to the hardware store on the backburner and headed straight back home and found my IC-910 and power supply in the removalist box. I also found my 8-element 2 m yagi and 11-element 70 cm yagi in the carport and a 6-foot length of aluminium tubing to use as a mast. The only thing I couldn't find was my coax cable, but rummaged through a box and found several RG58 coax patch leads as well as several coax adaptors to make up a 3 or 4 metre cable!

Fortunately, the house we have moved to is 2 storey, with a balcony on the top floor and a not too bad take off to the east.

The 2 m yagi was set up attached to the pipe and tied to the balcony rail. The 70 cm yagi had to sit on the balcony rail, as I didn't have another set of clamps and only a 1 m long patch lead. The IC910 was setup on a cardboard removalist box with a deck chair on the balcony. It was definitely a very temporary (and portable setup).

The power was switched on and I tuned into VK5RSE on 144.550 (5x3) and 432.550 (4x1). I then put out a call on 144.100 MHz and made my first contact with VK5AKK. After that, I had a pileup to work and unfortunately I didn't have a logbook handy to record all of the contacts.

Other stations contacted throughout the afternoon and evening in no particular order included:

VK5BC, VK5NY (5x9+ on 2m) also worked on 70cm, VK5DK, VK3AXH, VK3AAK, VK3HZ (Also worked on 70cm 5x1 - 2500km on a handheld yagi!), VK3II, VK3KAQ and VK3KSD

There may have been others, so please accept my apologies if I have missed anyone, but my logbook keeping is shocking!

Many stations are keen to try and work me on 23 cm. I do have the 23 cm module in the IC910 and a 60 watt VK3XPD amplifier, but still need to arrange an antenna and get everything operational.

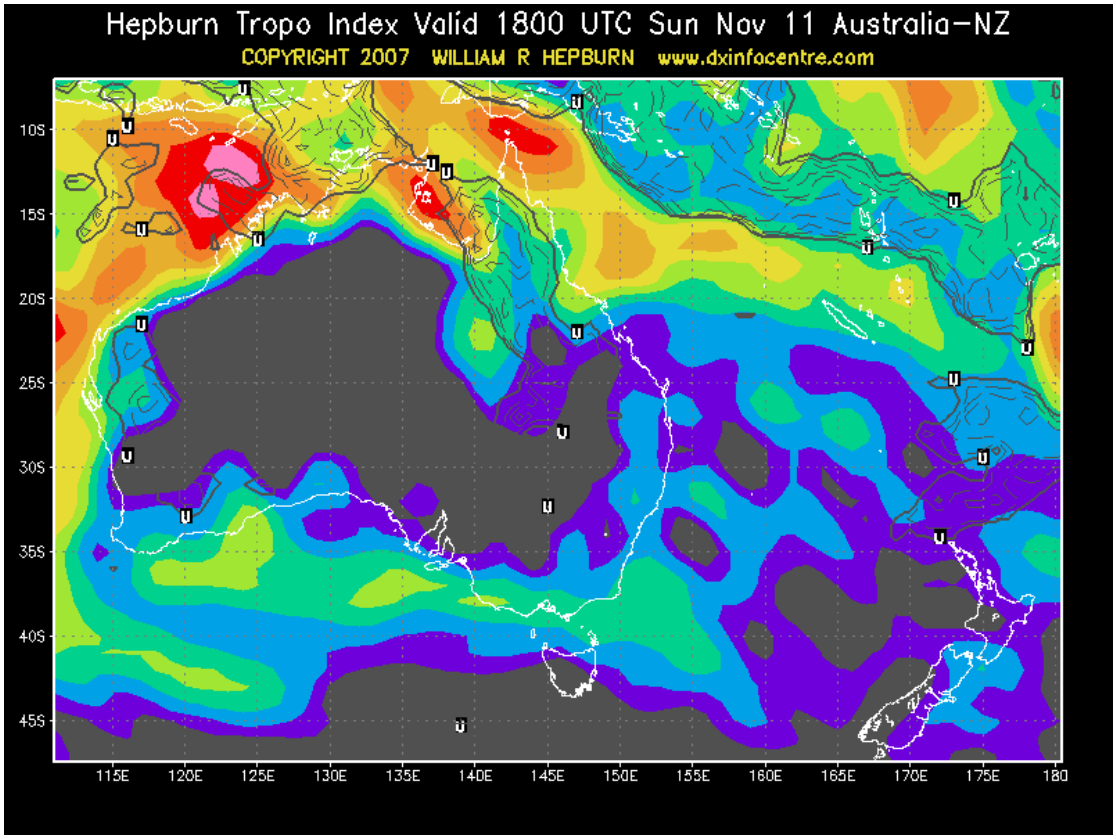
I hope to have some antennas for 2 m & 70 cm at least up in the next couple of months. It won't be anything too large as I am living in a house supplied by my employer and I have to tread a little carefully with the landlord!

So, it was a very warm welcome to the south, and VHF DX, for Rob. It's good to see some more stations active in southern VK6.

All this was happening on the evening of 11th November. While Rob was busy, others were also having fun. Bob VK6BE in Albany managed to work to VK3AAK, VK3II, VK5BC, VK5DK and VK5AKK.

Meanwhile, the eastern end of the duct appeared to be moving to the south. Adelaide stations were working into Tasmania with VK5BC working VK7LCW at 1100Z. However, barely an hour later, the Adelaide stations were barely above normal levels in Melbourne, while the VK3 to VK7 path was very good. Karl VK7HDX reported that, at 1310Z, he heard the VK6RST 2 m beacon – a distance of 2677 km. However, despite much calling, no contact was made.

The following morning brought more good conditions. Peter VK5ZLX reported hearing the VK3RGI 2 m beacon in the Latrobe Valley, and the VK7RAE 2 m beacon in northern Tasmania. The VK6RST beacons were still strong into Melbourne and beyond. The duct at the VK6 end appeared to have extended further west, with the Perth repeaters being heard in VK5 and VK3. The Hepburn chart clearly shows the duct running almost directly from southern VK6 to southern VK3.



At 2045Z, Wayne VK6JR in Yallingup on the western tip of southern WA worked into Adelaide to Phil VK5AKK (5x4) and Roger VK5NY (5x2). Roger's signal later got to 5x9. Don VK6HK in Perth reported hearing the VK5RSE Mt Gambier 2 m beacon at 5x3.

The duct then worked its way into VK3. At 2200Z, VK6JR worked Trevor VK3VG in central Victoria (5x1). He also worked Andrew VK3KAQ in the Dandenong Ranges to the east of Melbourne – a distance of 2764 km. Wayne was having power supply problems, so could only muster 10 watts. Hence, he only received a 3x1 from Andrew, but returned a 5x1.

Bob VK6BE had re-appeared. He worked VK3VG, VK3II, VK3AAK, VK5BC and VK5ZK. Wally VK6WG in Albany also popped up and worked Phil VK5AKK and Brian VK5BC on 2 m and 70 cm. An attempt with Phil on 23 cm was unsuccessful. Wally also worked Andrew VK3KAQ on 70 cm. Wally's signal on 70 cm was still well over S9 in Adelaide an hour later. At 0444Z, Colin VK5DK reported working Wally on 70 cm with a 5x7 report. However, by that evening, the duct had moved on.

Spring VHF/UHF Field Day

The Spring VHF/UHF Field Day has just finished and it was pleasing to hear many stations out in the field. Ron VK4KDD reports:

I was portable in Byron Bay (top of NSW) at a site with excellent take off to the north and south – and a view to kill for!

Had a slow start - missed the first 2 hours of the contest, and later had to move antennas because of interference from a commercial transmitter site. But when all the lessons were learned, it went smoothly and the station performed very well.

I managed 55 contacts (SSB only) on 2 m, 70 cm and 23 cm. All contacts were tropo - could not see much aircraft going on. Signals were there pretty much all the time.

On 23 cm, there was quite a bit of activity. I worked Steve VK2ZT (500 km) and about 4 other VK2 stations, into Toowoomba, and also VK4EME close to Gympie. The antenna is only a single 17-element yagi, which sounds big, but is only 1.3 m long.

70 cm was doing better than expected, with mostly better signals than 2 m. This was not so strange because I had 6 dB more antenna gain, with the same 400 W as on 2 m.

Ended the contest after an 18-hour day - 4.5 hours in the car (380km), 2 hours setting up site, 1.5 hour packing and 10 hours for the contest.

Ron also mentioned that, during the contest, Glenn VK4BG worked Norm VK3DUT – a distance of 1467 km. Glenn also heard several other southern stations – VK3ACC, VK2FZ and VK1BG – in what may have been a burst of Sporadic E.

One disappointing aspect of the contest was the operating procedures employed by some of the stations. The general trend seems to be the use of a contest calling frequency of 150 on each band. While this is fair enough, and the way the VHF/UHF bands operate during non-contest times, it can be seen as the lazy person's way of contesting – merely prop on the frequency and wait for someone else to call. And as for most calling frequencies, the concept can be easily ruined if people do not move off that frequency to continue their QSO. Many times, strong local stations would take up residence on 144.150 and have a long drawn-out series of contacts, blocking the frequency for others. This is particularly annoying for stations perched on distant

hilltops, as they often cannot hear the call frequency hogs, and their weak calls go unheeded.

So, if you must use the “calling frequency” method, please QSY as soon as you establish contact with another station. It would be fair for other stations to give a “reminder” to those not following this practice. Also be aware that the bands do not finish at 200. Spread out to minimise interference to other locals – there’s plenty of space. Only 6 m is limited to operation above 50.150. On all other bands, there is only a “recommendation” to stay above 150, but operation below 150 (except for the DX call frequency - 100) and above 200 is permitted.

Ultimately, we should all start using our VFO’s to good effect. Find yourself a frequency – 5 kHz increments work too – and call CQ. If the majority start operating in this manner, then we should all get higher scores and those distant stations will get more business – providing you swing your beam in their direction, but that’s another challenge.

1296 Operations

Barry VK3BJM near Kyneton reports some success in his attempts to work into Canberra on 23 cm:

I have completed the 2 x RA18H1213G PA that Chas VK3PY has designed, and it is now fitted to my transverter and making about 60 W on 1296 MHz.

This Monday morning (at 2237z 7/10/07), I first worked Ian VK1BG then Chris VK2DO on 1296.150 MHz, at our first attempt. Surprising how good signals were; my initial RS exchange with Ian was 51 both ways, with amendments to 53. I sent Chris a 51 (with QSB - the aircraft was moving away by then) and received a 53. I was also heard by Rob VK1ZQR, apparently, who called me but was not picked out by myself at the time (Rob is running a little less power than Ian or Chris).

All this on the first attempt, and a single aircraft pass, to boot! Looking forward to getting the pre-amp up to the masthead, and seeing how much better that makes things. Only running a single 39-element DL6WU yagi at present; like to improve on that in the future.

Beacons

Tim VK2XTT – BMARC President - reports some good news about new beacon construction:

The Blue Mountains Amateur Radio club is in the process of constructing beacons for 2 m, 70 cm, 23 cm and 13 cm. The beacons will share a common GPS-locked frequency standard and broadcast 1pps CW to stand out from all the RFI carriers.

The primary, GPS-locked, 10Mhz oscillator has been constructed and is awaiting tests. A prototype beacon controller has been constructed and is currently being tested. The 13 cm beacon is partially constructed - PA back to first tripler - and is awaiting tests. Parts for 2 and 70 have been acquired

With a little luck we might have a beacon or two on air by Christmas.

Please send any Weak Signal reports to David VK3HZ

Digital DX Modes

Rex Moncur – VK7MO

Welcome to Paul VK4APN, who is operational on 2 metres Meteor Scatter with FSK441 from Cairns in North Queensland. To date, pings have been copied from Paul by Wayne VK4WS in Brisbane, John VK4JMC in Laidley and Steve VK2ZT in Newcastle (1880 km). While a QSO is still to be completed, this is a good start and it is great to have a station operational in Far-North Queensland on meteor scatter.

Welcome also to Peter VK3TPR in Melbourne who is operational on JT65a on 2 metres. Peter has a good signal into Hobart peaking -15 dB.

Rex VK7MO, Justin VK7TW and Ken VK7DY have been experimenting with light (474 THz) using JT65a with a 36 photo-diode light receiver that has produced a 14 dB improvement in performance over a single photo-diode. With this improvement, Ken has copied Rex 5 days in a row via cloud bounce over a distance of 27 km with signals peaking -14 dB.

Joe Taylor K1JT has released a version of WSJT with experimental modes called JT2 and JT4. JT2 is a very narrow-band mode that uses two-tone frequency shift modulation to achieve sync and phase modulation to transfer information. Tests conducted between Rex VK7MO and Jim VK3II indicate that while JT2 does work on 2 metres, there are times when it fails with even good signal levels. Joe Taylor advises that the decoder is still very basic and improvements may be introduced.

JT4 uses 4-tone FSK and comes with versions JT4a to JT4g with different tone separations. The wider tone separations are designed to cope with libration frequency spreading with EME on the microwave bands and could also be useful for auroral scatter. Tests show that JT4a works very well on two metres but at this stage it does not include a Deep Search Decoder and its performance is limited to around -24 dB.

The prime motivation for JT2 and the narrower versions of JT4 is that with bandwidths of less than 10 or 20 Hz they permit a number of stations to operate within the same SSB passband and thus could be useful for contesting. The wider tone-spacing versions of JT4 should be useful for 10 GHz EME. At this stage, however, neither mode is competitive with JT65. If you are interested in testing out these new experimental modes, Joe has a basic description and a status report on these experimental modes at:

http://physics.princeton.edu/pulsar/K1JT/JT2_JT4.TXT

and the program can be downloaded at:

http://physics.princeton.edu/pulsar/K1JT/WSJT598.EXE

Please send any Digital DX Modes reports to Rex VK7MO

The Magic Band – 6 m DX

Brian Cleland – VK5BC

October has produced a few good sporadic E openings but no reported openings to JA etc.

Norm VK3DUT near Bairnsdale reports a good opening to VK4 on the 9th October working VK4's OE, BLK, ADM, ARN, WS, AHW & 2YDC/4 followed by ZL TV on the 10th October. Then on the 26th October Norm reported the VK5RBV beacon but no contacts and on the 30th October worked VK4ARS and VK5BC with more ZL TV on 2nd November along with the FK8 beacon and VK4 TV unusually late in the evening

(1210 UTC).

Andrew VK4KAY at Mackay reports that 6 m has been poor: “I have been in a 6 m drought, believe it or not. I have been out in my ute numerous times to see if I can get some openings away from the QTH. My QTH is about 5 km inland from the coast, so I have been driving to the beach to see if things are any better. Lots more F2 below 6 m but no E or F2 on 6 m”.

Kevin VK4BKP from the same area reports working VK4TWR, JOO & BLK on tropo on the 4th October. On the 7th October Kevin worked Brian VK5BC, on the 8th worked several VK3’s and VK1DJA and then on the 9th worked VK2’s ZQ, BX, BHO & Rob VK1ZQR. On the 25th October Kevin worked Keith VK5AKM and Rob VK3XQ.

Brian VK5BC reports good openings and contacts as follows:-

4th October - Ray VK4BLK

7th October - Kevin VK4BKP, Andrew VK4KAY, Ray VK4BLK, Frank VK4FLR & Gary VK4ABW

9th October - Neville VK2YO, John VK2BHO & Colin VK2BCC

25th October- Kerry VK2BXT, Mike VK2XQ, John VK2BHO, Gary VK2DJ, Ted VK2ARA, Brian VK2AH, Mike VK2BZE & Gerry VK2APG/m (this was from Brian’s portable QTH, Corny Point PF85mc and lasted several hours)

30th October- VK2’s BZE, BXT, DJ, BHO, AH, Doug VK9ZLH (Lord Howe Is) and Norm VK3DUT.

Two stations of interest to look out for this coming summer season. Doug VK9ZLH on Lord Howe Island has a 4-element yagi and has already worked Trevor VK3VG & Brian VK5BC on the 30th October. The other station is Paul A35RK from Lifuka Island, OC-169 Grid Locator AH20te (part of the Tonga group of Islands). Paul has a 4-element yagi and runs 100 W and is actively looking for VK/ZL contacts.

In last month’s notes, I failed to mention the 52.100MHz call channel. Standard licencees only have access to 52-54MHz and this is the call frequency listed in the WIA band plan for this portion of the band. I would suggest we should all monitor/scan this frequency as well as those in the lower portion of the band. I will add that 52.050MHz is often used as the call frequency as well, particularly from ZL.

By the time this magazine is available, we should be well in the swing of our summer sporadic E season and hopefully this develops into as season as good as last year in December/January.

Please send any 6 m information to Brian VK5BC