VHF/UHF – An Expanding World

David Smith VK3HZ

Weak Signal

David Smith - VK3HZ

As could be predicted in the depths of winter, August has been a very quiet month for VHF/UHF propagation. So, there's really nothing to report in that regard.

There is ongoing activity in the digital area, with a number people running WSPR beacons so it's worth describing again. WSPR was created by Joe K1JT (of WSJT fame). More information can be found on his web site at: http://physics.princeton.edu/pulsar/K1JT/wspr.html

To quote from the WSPR User Manual:

WSPR (pronounced "whisper") stands for "Weak Signal Propagation Reporter." The WSPR software is designed for probing potential radio propagation paths using low-power beacon-like transmissions. WSPR signals convey a callsign, Maidenhead grid locator, and power level using a compressed data format with strong forward error correction and narrow-band 4-FSK modulation. The protocol is effective at signal-to-noise ratios as low as –28 dB in a 2500 Hz bandwidth. Receiving stations with internet access may automatically upload reception reports to a central database. The WSPRnet web site provides a simple user interface for querying the database, a mapping facility, and many other features.

While WSPR was originally designed for HF use, it certainly works well for monitoring paths on 2 m. On that band in VK, the nominal WSPR frequency is 144.489 MHz.

Storing the spots in a database means that, in the longer term, some interesting analysis of propagation trends over certain paths may be possible. However, for the data to be useful and comparable from day to day, it's important that the station setup – in particular the antenna – be constant. While it's interesting to beam in different directions to see how far the signal goes, the beam heading is not stored in the database, so there's no knowing for a given report if the antenna was pointing north, south, east or west. Therefore, to produce useful results, it's better to run either an omnidirectional antenna or, if there's a particular path of interest (e.g. The Bight), use a fixed yagi. While 5 W of WSPR into an omnidirectional antenna doesn't sound like much, it is roughly equivalent to 100 W of SSB into a modest yagi.

More information on WSPR activities in Australia can be found on the VK Logger in the Forums under Digital Modes.

VK3RXX 1296 MHz, 2.4 GHz and 10 GHz Beacons

Alan VK3XPD reports the following:

Both the 1296.530 and 2403.530 MHz VK3RXX Beacons are now back on air, GPS-locked, both running 10 watts. Antennas are Alford Slots, now a little higher at about 10 m so hopefully they will get out a bit better.

The 10 GHz Beacon on 10368.530 MHz is also still running with 2 watts into a Waveguide Slot at 10 m.

All signal reports to Alan at alandevlin[at]bigpond.com will be gratefully received and acknowledged.

Please send any Weak Signal reports to David VK3HZ

Digital DX Modes

Rex Moncur – VK7MO

Meteor Scatter by Kevin VK4UH

As we have touched on in this column over recent months, the number of meteors providing us with useful "radio" returns is neither constant over a 24 hour day nor across the seasons of the year. Although" random" meteor activity can occur at any time of the day or night and during all months of the year, there are distinct peaks for radio returns occurring just before dawn, with a corresponding trough during the afternoon and evening, and during the summer months in each hemisphere, with a corresponding period of low activity during the winter. Visible meteor trails are only seen in the night sky only because those occurring in the daytime are masked by ambient light.

Superimposed on this cyclical pattern of random meteor activity are periods of often markedly increased rates of meteors observations. These meteor "showers", or at least their visual effects, have been observed since the earliest times and were recognised as returning at the same time each year. Unlike "random" meteors, those seen in showers appear to be originating from the same point or "radiant" in the sky. Meteor showers are therefore very predictable and are named according to the star constellation from where they appear to originate. To make optimum use of meteor showers for VHF communications requires a knowledge of the peak predicted dates and the radiant (source constellation) of the shower being above the horizon at both end of the path. Maximum activity during meteor showers may not correspond to the normal pre-dawn peak from randoms.

Much of what is written about amateur VHF meteor scatter relates to activity in the Northern Hemisphere. Some of the most intense meteor scatter propagation reported across Europe and North America occur from showers whose radiants are below our horizon and therefore do not support VHF propagation across VK and ZL.

I am grateful for the advice and assistance from Arie VK3AMZ in the preparation of the following Meteor Shower Calender specifically intended for our region.

Meteor Shower Name	Date of Shower peak
Lyrids	22rd April
Eta Aquarids	5/6th May
Southern Delta Aquarids	28/29th July
Orionids	21st October
Leonids	17/18 November
Geminids	13/14th December

Both the Geminids and Eta Aquarids are very intense, so much so that meteor scatter two way contacts have been successful on 432 MHz using FSK441 and SSB.

Without a major shower occurring during August, Meteor Scatter activity has reflected the slow rise from the winter trough of random MS propagation. Complete QSOs using MS on 144 MHz, FSK441 and JTMS modes, during the Saturday and Sunday activity periods have been reported on the VHF Logger between VK's 1, 2, 3,

4 and 5 and across ZL. Contacts across the Tasman between ZL and the southerly call areas have also been occurring. In general across this month, reported meteor return rates have been low with the majority of pings being weak. Typical conditions for this time of year. I had some personal success having completed for the first time with Rex VK7MO in Hobart on 21st August. At 1798 km this is my furthest QRB and a new grid and call area for me on MS. The QSO took 40 mins to complete.

Roll on Summer and the next Meteor Shower, The Orionids, in October.

Please send any Digital DX Modes reports to Rex VK7MO

The Magic Band – 6 m DX

John McRae - VK5PO

August has been another reasonably quiet month.

The band has been open into JA from mostly the northern tropics region. VK6OX/p made a contact with JI1CUL on the 21st August from grid-square PG08MM.

VK8MS worked Fred KH7Y in Hawaii on the 24th of August.

Brian, VK4EK and Lloyd, VK4FP worked into JA at various times during August, and Wayne, VK4WTN heard several JA beacons on the 19th ,and snared a contact with BA4SI! On the 29th and 30th, Wayne heard various JA beacons again. Signals were reasonably weak by all accounts. Let us all hope for a "burst" of solar activity soon, so that some exotic DX is worked from VK, particularly from the southern part of our continent.

Darrell, VK2BLS reports on Meteor scatter propagation:

My August operating continued with morning digital modes MS contacts on 50.230 with Wayne VK4WTN. Most days we try 50.2 SSB and point south, looking for Frank, VK7DX. John, VK4ZJB can usually be heard working Frank. Oly VK3XDX worked Scott VK4CZ on occasions with fast CW on MS.

The August MS bursts and burns have generally been fast and short. Working MS can be a bit like fishing. Patiently monitoring 50.200 and VK7RAE with Spectran runnin. This brilliant software helps show when the MS bursts and A/E are starting, then calling on 50.200 can result in many two contacts, although short and sweet, but on some mornings there is very little activity.

And from Steve Gregory, VK3OT/ZAZ:

VK4ZJB and myself, VK3ZAZ are about to log 50 years on 50 MHz. We Lost 50-52 in 1964 and still do not have it all back of sorts. Both of us have 6M DXCC obtained two cycles ago after 20 years of trying. I have recently completed 105 countries on 6m CW which also took 20 years.

Many other VK stations from the era of initial "ZED" calls will also be reaching the 50 year milestone on 6 meters. Let's hear from you guys!, maybe we can start a "50 on 50" club.

Some highlights are: VK3 to EU over 2 cycles, 25 countries contacted and much common ground created.

Handing out 10 different countries on the 6 M band and making first 50 MHz QSOs for many stations, including into VK.

Repeat Florida QSOs during this cycle along with VK5PO who pipped me for longest terrestrial distance so far (recorded) in the world this sun spot cycle.

Holder of many VK 6M records over 4 cycles, 33 years.

Mexico and USA worked over 33 years and four cycles 21-24.

W6 from YJ8 in 1979 which ARRL recorded as a US First.

Worked all 7 continents in 1993 along with VK3LK and VK5NC (Antarctica is unofficial number 7).

I reckon Gary VK5ZK and Brian (now VK5BC) have clocked up 50 on 50 too. Of course there are many others. I would really like to hear from anyone about their exploits on 6 m over 50 years. I bet there are some more great stories just waiting to be told to us all.

Please submit reports, logs or other info you may consider useful to John VK5PO