Amateur Radio

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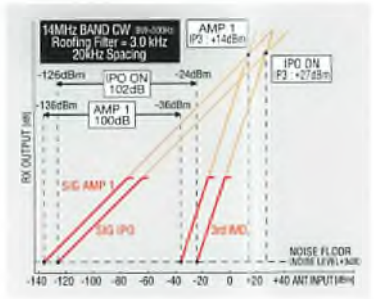

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347 Settlement Rd, Thomastown Victoria 3074
Tel: +61-3-9465-9399, Fax: +61-3-8682-8748
E-mail: yaesu@jnb.com.au

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Editorial

Editor
Peter Freeman VK3PF
editor@wia.org.au

Technical Editor
Peter Gibson VK3AZL

Publications Committee
Peter Hartfield VK3PH
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All circulation matters
nationaloffice@wia.org.au

How to submit material
Secretary
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or *armag@wia.org.au*

Letters to Editor
Editor AR Magazine
PO Box 273
Churchill Vic 3842
or *editor@wia.org.au*

Hamads
'Hamads'
PO Box 2042
BAYSWATER VIC 3153
hamads@wia.org.au

Advertising
All enquiries to
Advertising Manager
AR Publications Committee
PO Box 2042
BAYSWATER VIC 3153
or *admanager@wia.org.au*

Registered Office
Unit 20 11-13 Havelock Road
BAYSWATER VIC 3153
Australia
Phone: 03 9729 0400
Fax: 03 9729 7325

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General

This month's cover

April 25 this year marks the centenary of the landing of military forces from Australia and New Zealand on the Gallipoli Peninsula. To commemorate the centenary, Australian amateurs are able to use the AX prefix for two days. There will also be the special callsigns with ANZAC as the suffix operating during the year. See details in the report on page 32.

Technical

Columns

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

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Registered Office of the WIA

Andersson House
Unit 20, 11 Havelock Road
Bayswater, Victoria, 3153
Tel: (03) 9729 0400 Fax (03) 9729 7325
email: *nationaloffice@wia.org.au*
http://www.wia.org.au

All mail to

PO Box 2042 BAYSWATER VIC 3153

Business hours: 10am – 4pm weekdays

National Office staff

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Editorial

Peter Freeman VK3PF

Portable operations booming

I continue to observe that the number of amateurs operating portable and QRP/portable is increasing. Yes, part of that due to the number of operators participating as SOTA Activators, but that is not the only group.

Many operators are heading out to find a location which offers a quieter RF noise environment than they have at home. I guess that some may not wish to, or not able to, erect antennas at home. Even a local park where you can find a spot well away from the almost ubiquitous power lines can provide an operating site with less noise than at home, or from the vehicle on the road.

Such an operating site can bring stations well out of the noise, with the lower noise levels away from man-made interference sources.

I guess the extreme is to head for a remote SOTA summit without any RF or other infrastructure.

Another factor works well with the lower noise location is the challenge of gathering Parks for one of the award schemes: Keith Roget Memorial National Parks Award from Amateur Radio Victoria, the South Australian National and Conservation Parks Award from the Adelaide Hills Amateur Radio Society, the VK Flora and Fauna Award administered by Paul VK5PAS and the World Wide Flora and Fauna Award administered by a group of European amateurs, with Paul VK5PAS being the local representative.

These awards are not strictly competitive; rather they set differing levels of challenge for you the operator. You can simply be a Chaser (or Hunter in the case of the VKFF and WWFF awards), seeking to make contact with someone who has ventured out into a Park or onto a summit to "play radio" for a period of time. Or you can check the rules and head out as an Activator.

Whether an amateur is out and about for SOTA, one of the award schemes or simply out enjoying the great outdoors with their radio equipment, activity has significantly increased over the past couple of years, especially on 40 metres. Why 40 metres, one might ask. I can think of several reasons: propagation during the day is usually reasonable, allowing contacts out to several hundred kilometres even with QRP power levels, it is one of the "common ground" bands where all three levels of amateur licence can operate, and one can build reasonably efficient lightweight antennas for the band (doubling up as a 15 metre antenna).

But there are also some downsides: especially noise can be high at home locations, thanks to the multitude of devices with poorly filtered switch-mode power supplies and other electrically noisy devices that abound in urban or semi-urban locations.

This last factor can sometimes cause friction between operators. The old adage of listening for several minutes before placing a call may no longer be adequate. I frequently observe operators coming up on 40 m calling CQ, without first asking if the frequency is in use. They have obviously not heard any signals on the chosen frequency, yet a weak

Continued on page 64

WIA comment

Phil Wait VK2ASD, with Roger Harrison VK2ZRH

The last 50 Years – a Personal Perspective

A few months ago I asked WIA Director Roger Harrison to write a stand-by President's Comment in case it was required while I was overseas on business. It was not used at the time, but I thought members would be interested and it's probably a welcome change from your President banging on every month:

I realised last year that I had been licensed for 50 years; something of a milestone. This realisation led me to think about the changes that transpired in amateur radio over those five decades.

Encouraged by a local amateur, Alan Reid VK3AHR (SK), I sat for and passed my exam as a teenager in 1964. The exam required essay-style answers to questions; mathematical questions required answers showing the working-out. I had to sign a declaration under the Official Secrets Act to get my licence, and was subsequently issued the callsign VK3ZRY.

Through the 1960s, there were three Amateur licence grades: Full, Limited and ATV (your call with a /T suffix – you had to pass an additional exam to get it). Limited licensees were confined to all bands above 30 MHz. There were only five permitted transmission modes – hand-sent Morse, AM, FM, RTTY, SSB and TV. You could build your own equipment or modify ex-commercial or ex-military gear, generally without restriction – provided you kept transmitters within the proscribed power levels of 120 W on AM/CW, or 400 W pep SSB.

The minimum age for prospective licensees was 14, but you weren't allowed on-air until the age of 15! I recall reports of US Novice licensees getting their tickets at ages 11-12. The question of having a Novice licence in Australia was widely discussed on-air and at amateur gatherings. The general idea was to attract young people. However, I distinctly recall that voice transmission for the prospective Novice licence (should the Earth turn upside down) was strongly frowned upon by a section of the extant amateur fraternity – new entrants to the hobby would have to know and use Morse; it was the amateur tradition, after all! Mind you, others expressed the view that Limited licensees ("Z-calls") were "not real amateurs", even though the introduction of the Limited licence in 1954 was strongly advocated by no less a figure than John Moyle VK2JU, the then Editor of Radio and Hobbies magazine (forerunner to Electronics Australia).

In the mid-1960s, the AM-versus-SSB wrangle was in full swing on the HF bands; SSB proponents were derided as "duck-talkers". Use of SSB on VHF was in its infancy, but the rancour on the HF bands had not spread to the bands above 30 MHz. In 1964, we lost 50-52 MHz to Channel 0 TV, along with 288-296 MHz to other services. However, we gained the 420-450 MHz band on a secondary basis, shared with radiolocation, chiefly used by Defence. If you dabbled with transistors for homebrew amateur rigs, you were considered to be out on the bleeding edge. Three-legged fuses were legion; that's how you learned.

Amateur radio entered the space age in the 1960s with the launching of the OSCAR satellites. Here, indeed, was a new frontier. A bunch of student friends and I established the RMIT Astronautical Society to pursue space science interests. Inevitably, we hooked up with the Melbourne University Astronautical Society (MUAS), who embarked on a project to design and build an amateur satellite using off-the-shelf parts. In May 1966, MUAS trialled a prototype 29 MHz beacon on a high altitude balloon flight, dubbed Bravo 5. I remember it caused a great deal of excitement in the amateur fraternity at the time; I recorded the flight and plotted the beacon signal strengths for the MUAS team. I still have that plot. Come 1970, the Australian-built Australis OSCAR 5 was launched in January. It established a number of firsts for small, low Earth orbit satellites.

The 1970s ushered in a revolution in the electronics sector – the microcomputer. This soon drove the development and adoption of digital 'packet radio'. In due course, the regulator moved with the times and upgraded permitted modes for amateurs – digital data and slow scan TV were added and amateurs could exploit six transmission modes. Use of the amateur VHF and UHF bands grew rapidly, fuelled by surplus ex-commercial transceivers and plug-and-play rigs from the amateur rig manufacturers. Through the '70s there was rapid development and deployment of VHF and UHF beacons and repeaters. A series of OSCAR satellites with linear transponders expanded on the short-lived OSCARs 3 and 4 of 1965, popularising amateur

Continued on page 5

WIA news

ANZAC Centenary callsigns deadline

All applications for the commemorative ANZAC suffixed callsigns issued by the WIA must be made fairly soon and certainly finalised before the end of March. The WIA Board has a deadline of March 31 for its ANZAC callsigns, with applications accepted online and filled in using the correct UTC day or days. The callsign applications are only for up to a week at a time.

If seeking an ANZAC callsign read the requirements and obligations which include eQSLing, logging and award eligibility. This information will not only be of interest to ANZAC stations, but they can mention them frequently on air and refer to the WIA website for full further detail.

ANZAC callsign bookings have been good and where overlaps in proposed dates have occurred, the majority of groups are showing consideration and have been flexible enough to adapt. Also a number of other clubs and individuals are to use the alternative AX callsign prefix, available this year for up to 48 hours. Following WIA representations the ACMA in recognition that this is the Centenary of ANZAC, will allow for the use of AX on Saturday and Sunday April 25 and 26.

The WIA recommends that if AX is used then a QSL card with that callsign be used to satisfy the many prefix and commemorative event hunters.

QSL Collection report

During 2015 some major work has been carried out to tidy up the WIA Bayswater factory space behind the WIA Office. This work included the QSL collection area. The WIA, thanks to the work of Ken Matchett VK3TL - Silent Key, has the second largest historic QSL collection in the world. This is a collection of QSL cards that have been donated by radio amateurs and short-wave listeners from both Australia and overseas, the aim of which is to preserve the history of amateur radio. QSL cards also have an archival value in that old QSLs, through their description of radio equipment and comments made by our radio amateurs, can depict the fascinating world of amateur radio in its early days.

Members of the WIA have reason to be proud of their WIA QSL Collection, as it contains some of the rarest archival material in the world. The QSL of Reinhartz 1XAM of the USA, and De Loy of France is in the collection. It was this amateur radio transmission between these two experimenters in November 1923 that bridged the Atlantic for the first time. The QSLs of Frank Bell Z4AA and Cecil Goyder G2SZ are also in the collection. These experimenters made the first two-way amateur radio contact between New Zealand and England in 1924.

The Collection has also an excellent range of post WW1 QSLs such as rare DX, IOTA, DOK, Prefix and USA County QSLs, in addition to a thematic collection and a pictorial collection containing some of the World's most attractively designed QSLs.

Extensive discussions with Wolf Harranth OE1WHC, *Documentary Archive Radio Communications*, in Austria have taken place. Wolf had provided to the WIA approximately 50,000 QSL cards which have been integrated into our collection. These cards filled gaps in the WIA's collection. Wolf and his research team provide a service to amateur radio by documenting historic aspects of both amateur and commercial radio operations. The Austrian collection of QSL cards is the largest repository for historic QSL cards in the world. The WIA has links to this group and continues to provide them with important historic amateur radio information.

The WIA Board are currently seeking a permanent curator for the historic QSL Collection and will be seeking expressions of interest as soon as the factory tidy up is completed.

VI8ANZAC very popular

The Darwin Amateur Radio Club (DARC) has completed its activation of the VI8ANZAC callsign as part of the re-enactment of the journey by Albert Chalmers Borella to enlist in WWI. He went from Tennant Creek to Darwin, then to a sign-up point in Townsville in Queensland. Albert Borella served at Gallipoli in 1915, the Western Front in France and Belgium, and is the only person from the Northern Territory to be awarded the Victoria Cross.

DARC President Gary Gibson VK8GN reports that VI8ANZAC was put to air by 10 operators scattered across Darwin, keeping it on air until midnight local time from February 20 to March 3. There was a concentration on 40 m, 20 m, 15 m and 10 m using both SSB and CW. The callsign was greeted with plenty of interest on the bands. The total number of contacts was more than 1,000 with the QRZ.com hits about 7,400.

At the end of the journey by his grandson Richard Borella that was on foot, horseback and train, it was announced that Darwin's newest suburb would be named Borella. A series of VK state and territory callsigns are to be used during ANZAC 100 that are prefixed VI, have a state numeral and the ANZAC suffix.

NASA moon bounce signal heard

When the National Aeronautic and Space Administration (NASA) Jet

Propulsion Laboratory (JPL) decided to bounce a signal off the moon, it had listeners around the world including at Mildura and Geelong. On Tuesday March 3 between 0600 to 0900 UTC, the JPL tested its Lunar Ranging Experiment. With JPL using 20 kilowatts into a 34-metre antenna, it was suggested that reception of the reflected signal would be possible on a basic receiving antenna.

This inspired Noel Ferguson VK3FI in Mildura, who decided to have a listen. As his three metre dish was out of service, he decided to try an old "grid pack" pay TV antenna to pick up the reflection on 2115 MHz. The initial noise floor was about strength five. The reflected signal first appeared as the moon rose over the tree line at about 0820 UTC, with the moon's distance at that time about four hundred and three thousand kilometres from earth. Signals in Mildura peaked at strength seven using the FT847 as an IF on 164 MHz. Noel VK3FI reports that reception continued through to 0900 UTC, when the JPL test was terminated.

Chas Gnaccarini VK3PY at Lara near Geelong also checked the signal using a spectrum analyser, 1.2 metre dish antenna and pre-amplifier. He saw a huge signal, 20 dB above the noise.

WIA comment

Continued from page 3

satellite operations, which has carried through to today. Russian-built amateur satellites joined the bandwagon.

The CB boom of the mid-late '70s *('those pirates stole our band!')* proved an unexpected boon as many CBers 'saw the light' and joined the ranks of radio amateurs. Many amateurs dabbled in CB, too. A Novice amateur licence was created in this era, but its first incarnation was a failure, with a two-year tenure limit, compulsory Morse test, a few HF bands and 30 watt power limit. It was subsequently 'corrected' and provided a stepping-stone for many new amateur radio newcomers.

In 1979, the three WARC bands at 10 MHz, 18 MHz and 24 MHz were agreed at an ITU meeting, thanks to the efforts of WIA representatives David Wardlaw VK3ADW in company with Michael Owen VK3KI (SK). When released in due course across the globe, the HF amateur bands grew by 60 per cent and amateur transceiver manufacturers added these bands to their rigs and promoted it as a 'feature'.

Come the 1980s, our then licensing authority reluctantly agreed to packet radio networking, but limited it to only one methodology. Some assiduous advocacy saw that limitation lifted, later. A 2 m allocation (146-148 MHz) was added to the Novice licence amid some controversy. The pace of development on the VHF and UHF bands continued relentlessly, with more beacons and repeaters spreading across further reaches of the country. A new space frontier opened-up, with the first use of amateur radio on manned spacecraft – the Space Shuttle; another space project in which Australian amateurs were in the fore.

Technological developments in digital transmission in the 1990s saw amateurs exploring spread spectrum transmission modes as well as narrowband digital modes for weak-signal working. As these developments burgeoned, the regulator had to play catch-up and expand the amateur licence conditions. The Novice Limited licence was introduced, designed to attract young people, but low power and restriction to 2 m and 70 cm proved too limiting and take up was low. Amateur radio in space expanded over the 1990s, with operation aboard the Russian space laboratory Mir and the International Space Station establishing a strong following with passionate experimenters in Australia and around the world.

Since 2000, the number and variety of transmission modes has continued amazing growth and usage within amateur radio. Fifty years of continuous development has created a multitude of facets and niches that can now be explored in our hobby. I am astonished that, in this era, amateurs are able to take a small computer board, such as the Raspberry Pi or the Arduino, and then use mathematical software such as Matlab Home, adding signal processing or amateur radio modules to create a new transmission system not-yet-invented! And create another next week! All for less cost than a commercial off-the-shelf amateur rig with DSP.

Amateur radio has come a truly long way in the five decades since I passed my licence exam.

I am a product of the Rex Black Youth Radio Scheme which was introduced into my secondary school in the 1960s, and many hours covertly studying the ARRL Handbook in economics classes for a Z-Call (VK2ZZQ). Luckily I passed both! Things have certainly come a long way in 50 years, but the next few years promise to be even more interesting.

PS: If you receive your AR on the usual date, there will still a few days for your club or group to apply for a special ANZAC callsign. Please use the on-line application form on the WIA Web site and ensure your application is received by the WIA before the strict 31st March cut-off date.

Wire antennas for seaside DXing

Peter Parker VK3YE

A saltwater location is highly favoured amongst HF DXers. Signals may be stronger and local noise less. **With simple but good antennas results can match those of** more elaborate stations inland.

Except for the fortunate few in waterfront homes, beachside operating normally entails going portable. You'll need to take all equipment and possibly erect the antenna unassisted. In some cases everything will be carried on foot. All this means a station as simple as possible, especially if the intended activity is only for a few hours. Linear amplifiers, towers and rotary beams are all likely to be left at home.

You don't need much to start building portable HF antennas. The main items are two telescoping fishing poles, with eight or nine metres suggested, sand stakes, thin insulated wire (a 100 metre reel is enough for several antennas), fishing line, Velcro straps and insulating tape. A 1:1 balun, wide range antenna coupler and (in some cases) coax feedline complete the list. An antenna analyser is nice but not essential while your transceiver probably has an inbuilt SWR indicator. Total cost is likely to be around $100 - $150, with most of that being on the poles.

In choosing suitable antennas we'll assume no nearby trees and lightweight masts unable to support anything heavier than thin wire. Ability to withstand moderate wind, easy installation and avoidance of guys or long radials (which can trip bystanders) will be taken as essential. Though there will be one design band, capability on others would be an advantage.

Know the location and the facilities nearby since these determine what can be erected. A pier allows antennas to be put over water and provides a sand-free operating location. Its material matters; timber avoids interaction with the antenna while metal may form a useful counterpoise or ground connection but can detune antennas or distort radiation patterns. Alternative mounting methods for masts, where no pier is available, include a stake in the sand, a nearby fence or bench seat.

This article reviews six DX portable antennas. All are vertically polarised as this has been found most efficient at waterside locations where low angle radiation was desired. Most experience has been on 14 MHz though dimensions can be scaled up or down for other bands.

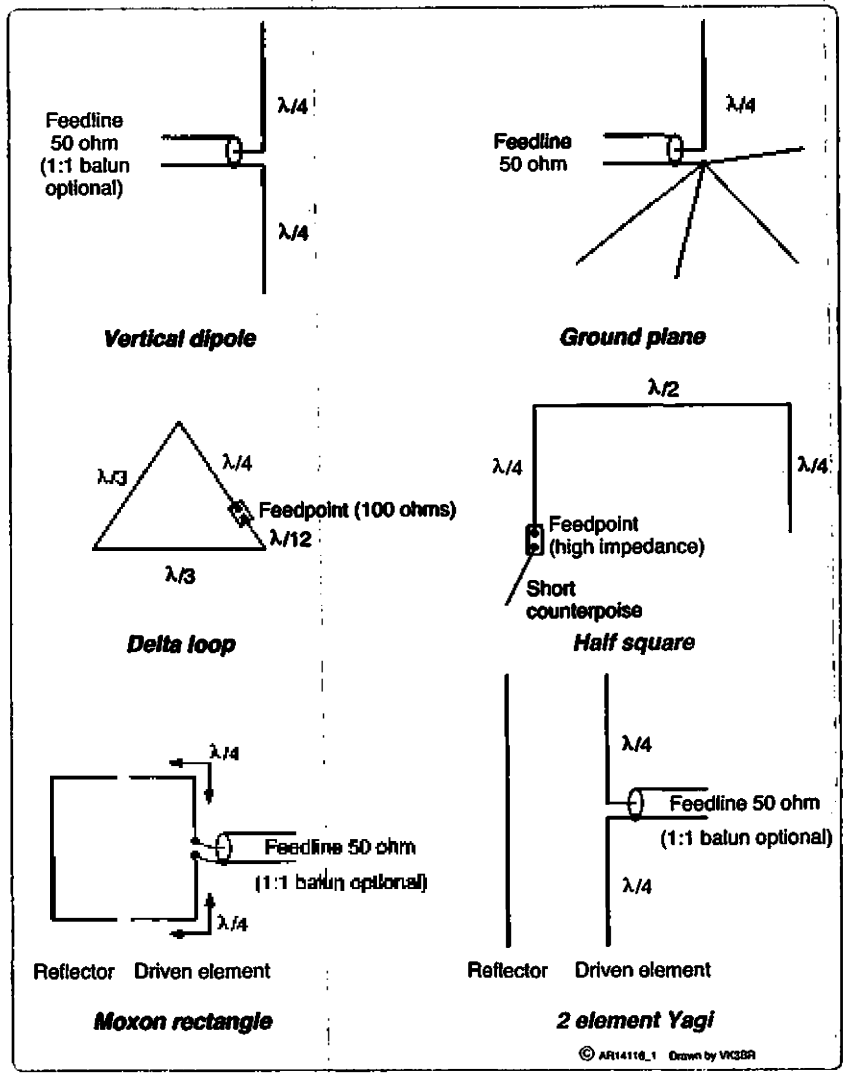


Figure 1: Various vertically polarised antennas for portable use: (a) vertical dipole, (b) ground plane, (c) delta loop, (d) half square, (e) Moxon rectangle, (f) two element Yagi.

Vertical dipole

The simplest and most basic antenna is the vertical half wave wire dipole. It is ideal for operation on piers where there is water

Photo 1: Typical items needed – 2 x squid poles, sand stakes, wire, Velcro straps, coupler, fishing line, insulation tape.

directly underneath. Dipoles are compact, easily transported and need just one insulated telescoping support pole. Wire, rope or Velcro strap holds the pole to the fence or pier railing.

Try to bring the feedline away from the antenna at right angles to preserve the roughly omnidirectional radiation pattern. The thinnest available insulated wire will lessen the load on the support pole and limit bending.

Most large squid poles have a top loop to thread wire through. Or you can save time by threading a small plastic insulator, for instance, from a chopping board, onto the antenna wire once only and tying this to the squid pole's loop each time. If your pole has no loop make one by taping some rigid wire to its top section or forming a bow from flexible plastic, for example, from a margarine container, to thread onto the pole.

One trick with vertical wire dipoles is to use the pole to support the top half of the dipole and the coax feedline, using Velcro straps or tape for support. The lower dipole element is then tied off to a pier railing via rope or fishing line at about 45 degrees to the vertical. This arrangement lessens bending compared to if the pole's thinnest sections had to support the feedline. The angle to the feedline won't be a textbook 90 degrees but good contacts will still be made.

The basic coax fed dipole is efficient on its design band only. An antenna coupler may allow operation elsewhere but at the expense of feedline losses. Use other feed arrangements to more efficiently get other bands.

For example an off-centre dipole with a 4:1 or 6:1 balun may allow 14 and 28 MHz operation and be more convenient to feed. Even more frequency agility is provided with open wire feedline and a balanced antenna coupler. A 14 MHz tuned feeder dipole with a wide range coupler works well from about 10 to 28 MHz.

Efficiency falls at lower frequencies while at higher frequencies the radiation pattern breaks up into multiple lobes.

A vertical dipole is the easiest of the antennas described here to build. Build one before attempting the others and use it several times to get an idea of what it can do.

Ground plane

The ground plane, familiar to all 27 MHz operators, can be an effective DX antenna. It requires a quarter wavelength of wire on the operating frequency and additional wire for the radials. Like a vertical dipole its radiation pattern is omnidirectional.

A major advantage is its compactness when carried. Unlike other antennas described here, which use an eight or nine metre telescopic pole, the vertical element of a 14 MHz ground plane needs just a 5.4 metre pole to support. Apart from being thinner and lighter the shorter poles retract to about 65 centimetres. This makes them practical to carry in a small backpack.

A ground plane may have between two and four radials. Sometimes these droop from the feedpoint to provide a 50 Ω load to the coax feedline, but this is not always practical when portable. Radial lengths, radial positions and ground conductivity all vary the ground plane's feedpoint characteristics. For this reason I recommend an antenna coupler at the antenna's base. This also provides multiband capability, with a five metre vertical radiator performing well between 10 and 30 MHz.

Radials are the biggest problem with ground planes. Especially if elevated they pose a trip hazard in public locations such as beaches and piers. They also attract dogs. If operating in busy areas you might want to consider less radial-dependent antennas, for instance a half wavelength vertical. This has a high feedpoint impedance so will require a suitable antenna coupler and short wire counterpoise.

Delta loop

Next we present the single element delta loop. It can be visualised as a triangle pointed up. Delta loops are more suited to portable operation than square quad loops because they need only one support. Unlike a half wave dipole it uses a full wavelength of wire, or approximately 22 metres on 14 MHz. While this looks large it can still be supported on an eight or nine metre telescoping pole provided thin wire is used.

The delta loop is directive, with maximum radiation broadside to the plane of the wire. In other words if the loop runs along an east-west pier the maximum radiation will be north-south. This is not that sharply defined so don't worry if your pier or fence is not quite in the optimum direction.

An interesting feature of the loop is that its polarisation varies depending on where you feed it. Feeding it in the centre of the bottom side gives horizontal polarisation. Whereas feeding it part way down one side or, more precisely, a quarter wave from the top, or about 5.4 metres, produces a vertically polarised signal. The latter is preferred if operating the antenna from a pier with salt water underneath.

The bottom corners can be supported with rope or fishing line. A pier with timber railings is helpful as the bottom side of the delta can be threaded in and out of the uprights and kept horizontal. If set up on the beach, try using tent pegs or similar in the sand instead.

Delta loops have a feedpoint impedence of about 100 Ω. A common arrangement if using one at home is to feed it with a 1:1 balun followed by a quarter wavelength (multiplied by the cable's velocity factor) of 75 Ω coaxial cable to the transceiver. This provides a transformation down to 50 Ω.

Unfortunately baluns and coaxial cable can strain lightweight wire and masts. I've had success with a couple of metres of thin figure eight cable between the antenna and 1:1 balun. If needed an antenna coupler can be placed between this and the transceiver. While figure eight is not the lowest loss feedline, short lengths should not unduly compromise performance.

The delta loop has been found to be an excellent DX transmitting antenna. Even during competitive contest conditions on 20 metres five watts SSB has been sufficient to work many stations. Probably the greatest compliment possible, and one that the delta loop can earn, is when others break in to disbelieve your strong signal for the power output used.

Half square

The half square, like the delta loop, contains one wavelength of wire whose dimensions are not overly critical. It is also bidirectional with gain broadside to the wire. However it is not a loop; the ends of the wire element are well apart rather than meeting at the feedpoint. The half square is best visualised as an inverted U, comprising two vertical quarter wavelengths of wire separated by a half wavelength of wire running horizontally across the top.

As you may have gathered this requires two telescoping masts to support. Fortunately the weight on the masts is minimal and squid poles are sufficient with lightweight wire and bottom feeding. The poles can be held in the sand with sand spikes made from one metre lengths of angle aluminium, readily available from hardware stores. Alternatively ready-made sand spikes can be purchased from eBay sellers of fishing accessories.

The half square is vertically polarised. It can be fed by breaking either top corner and feeding with 50 Ω coaxial cable. This is electrically sound but inconvenient for a lightweight portable antenna. Instead it's easier to feed it end-fed at the bottom. Because it's a

multiple of a half wavelength (in this case a full wavelength) the impedance will be high and the antenna cannot be simply plugged into the back of the transceiver. Instead you'll need a simple L-match coupler and short wire counterpoise similar to if you were using an end-fed half wave.

I have successfully used the half square on the beach. With its horizontal wire parallel to the water's edge maximum radiation will be in the direction straight out to sea (and inland). You'll note that this is 90 degrees different to the pier example above where the delta loop's plane followed the pier and maximum radiation was along the coast. Like the delta loop the half square's null is not severe and I've had good reports from stations well off its heading.

Because its vertical elements are only a quarter wavelength long, as opposed to a half wavelength for a vertical Yagi, the half square is a practical way to get low angle gain even on the lower HF bands. For example a nine metre squid pole should be sufficient for a 10 MHz half square while the rarer 12 metre type may even be suitable for 7 MHz - though wire sag may be an issue.

A 22 metre wire, such as used in a 14 MHz half square also works on other HF bands. It is a half wavelength on 7 MHz and a three quarter wavelength on 10 MHz. The same antenna coupler used on 14 MHz should allow operation on these and other HF bands. 3.5 MHz operation as a quarter wave is also possible though performance will be compromised without a good ground system.

Vertical Moxon

A step or so above the antennas so far described is the vertical Moxon. It's effectively a two element reflector/driven element Yagi with the ends of the elements bent inwards. The major benefit is the saving in height. Instead of having elements about 11 metres high (for 14 MHz) the vertical Moxon's elements are less than eight metres high. This is a major benefit given the length of telescoping poles commonly available. It can be fed at the side or bottom, with the latter requiring an antenna coupler.

The Moxon beam's unidirectional radiation pattern is an advantage in parts of the world where close-in signals from the antenna's rear swamp desired DX stations. The additional gain on transmit also comes in handy.

Both these benefits come at a price. The Moxon's dimensions, particularly the spacing between the bent in element ends, are more critical than other antennas discussed here. Also flexing of the squid pole supports and feedline weight (if fed at the side) can put the antenna out of the vertical rectangular shape in the textbooks. If you can find more rigid supports, tolerate guy ropes or operate in low wind but still

waterside environments, the Moxon is definitely worth persisting with. It's given me good results but I would suggest trying other antennas described here first.

Vertical Yagi

I haven't yet tried a vertical Yagi, mainly because its dimensions are quite long for 14 MHz. However it becomes much more manageable at 21, 24 or 28 MHz.

A possible approach is to build and optimise a vertical dipole first. Then walk around with a parasitic wire element taped to a pole. This can either be a reflector, about 5% longer than the driven element, or director, about 5% shorter than the driven element. 'Cut and try' will almost certainly be needed since element length varies with element thickness, thin wire elements being longer than thick tubing elements. There are also variations between insulated and bare wire.

Adjusting the element spacing, while listening to a weak signal such as an IBP beacon in the chosen direction, should result in a point where gain is exhibited over a vertical dipole on its own. At this point the parasitic element can be fixed, either with a sand stake or tied to a convenient upright on a pier.

Trying different feeding methods may also be worthwhile. Like the Moxon, bottom feeding is mechanically superior but more complex electrically as an antenna coupler capable of matching a high impedance wire is required.

Conclusion

A well-built portable seaside antenna should permit regular contacts with Europe and North America with five watts SSB. You will likely find that many DX stations worked are 'big guns' with at least five or six elements on high towers.

Signal reports are a common way to assess your portable station's performance, but are rarely accurate in contests or from high-pressure DXpedition stations. Better signs that your antenna is working well include (a) whether stations reply to you on your first call and get it right without repeats, (b) whether people chat or quickly end the contact, or (c) whether you are able to work distant weaker stations using small Yagis, verticals or dipoles. The Reverse Beacon Network is another worthwhile tool for CW operators to assess signal strengths and propagation.

Of the antennas discussed, my favourites are the delta loop and half square for speed of erection and good results. However you can spend many enjoyable hours trying the others as well. Further information is available from numerous web articles and YouTube video demonstrations including some by the author.

Run by the Sun – a solar powered caravan shack

Rob Norman VK5SW

Photo 1: Run by the Sun.

In the Australian bush, far from a power grid, amateur radio stations are usually run by solar power. This article describes my experience of converting an old, disused and rundown caravan, to a fully functional solar powered amateur radio shack.

The previous owners of our property had left the van standing on a slight hill in the middle of our acreage - a location which favours radio signals in all directions. It was beyond repairing to a standard which would see it mobile again, but would make an ideal, self-contained amateur radio shack.

In late 2012, a mini cyclone roared through this area.

The ferocious winds tore off the vent on the roof of the van, allowing rainwater to enter it for the next 18 months, before I had any inclinations towards repairing the old caravan. One of the windows was smashed and the side of the aluminium van facing the storm was pock marked by stones and debris whipped up by the wind. By the time I had decided to repair it, the van had been sitting, neglected and unused, for at least ten years.

Where to start? The first order of business was to take all of the sodden plywood and timber out of the van. The linings at one end of the caravan were beyond repair, so out came everything but the

Photo 2: The old caravan.

aluminium skin itself. Two large windows at one end, which were not sealed properly, had been allowing rainwater to seep in and run down onto the timber floor, part of which had rotted away. The table was pulled out and disposed of. The supporting structures of the bench seats either side of the table were also badly damaged, so new timber supports were installed. The other end of the caravan was in fair condition. The mattresses were missing but the bed bases remained. The ceiling of the van had also been damaged by rainwater having come in through the open roof vent.

I sealed all sources of rainwater leaks on the outside of the van using silicon sealant, replaced the broken window, temporarily sealed the roof vent and repaired the interior of the old caravan to a reasonable standard. Two coats of dark green paint were then applied

Photo 4: The two solar panels.

Photo 3: The refurbished caravan.

Photo 5: Charge controller.

to the van. The bed bases, being in good condition, were converted into the bench top for the radio gear. A wooden frame was built to increase the height of the bench top which was also given two coats of paint.

Once the refurbishment of the caravan had been completed, it was time to embark on powering the radio. These days, solar panels are reasonably cheap, especially compared to prices of just a few years ago. I purchased two eighty watt, twelve volt, polycrystalline panels.

The price, at the time of purchase, April 2014, was $240 each. This gives 160 watts to keep the battery in good shape. These panels were made in China and are supposed to last for twenty five years by which time the current output should be down by less than about twenty percent. The panels, wired in parallel, can deliver in the order of 20 volts and up to about 5 amps each, depending on sunlight. They are connected to a charge controller through heavy gauge wires.

The controller or regulator is used to prevent overcharging of the battery and thereby extend battery life. It regulates the charging voltage to around 13.8 volts to 14.3 volts for 'boost' charging and about 13.5 volts for 'float' charging. These are approximate values. The controller cost $170. When there is a large current drain from the battery, the controller will allow maximum regulated current to flow into the battery from the solar panels. When it is fully charged, little current is sent to the battery.

The controller here regulates the current and voltage fed to a deep cycle battery which is an AGM sealed acid type of 150 Ah capacity. This size suits my needs at present but these batteries are not cheap. The cost was $700, but once you have a solar system up and running, there are no ongoing power bills.

Photo 6: The battery.

Photo 7: The purpose built galvanised steel frame.

Maintenance is not required on this particular battery which has an expected life span of ten years or more, depending on usage. The components of this solar system were purchased from Jaycar.

I have another lead acid, deep cycle battery which has been in use for eight years. Information about setting up a solar powered amateur radio station can be found on my website at *www.vk5sw.com* A galvanised steel frame was constructed to support the solar panels as shown.

It was made from steel railings which were used in the construction of our colour bond garage. The frame, supporting the solar panels, was concreted into the ground and is very sturdy. Insulators are needed between the steel frame and aluminium panels to prevent corrosion. I used sections of black plastic irrigation hose with a hole drilled through the sides of it. The hose is compressed when the nuts are tightened. Stainless steel nuts, bolts and spring washers were used. Tilting the panels to about 45 degrees catches more of the winter sun.

Solar power is affordable, clean, quiet and able to be used in all kinds of places. Operating a Yaesu FT-450 on the HF bands here is good fun. The background noise level on the radio is very low because we are so far away from man-made noise. Surrounding windows mean that I have a good view of the countryside from the operating position. It is cosy in winter but too hot in summer, so most of my operating in the van is done during the cooler months. The sound of rain on the roof makes for very pleasant operating.

It has been a good experience to repair this old and neglected caravan and to give it a new lease of life. Perhaps you have a caravan in your back yard, or a garage, or possibly a tool shed. Any one of these could be used as your new amateur radio shack. Maybe you will need or want to use solar power. If so, give it a go!

Photo 8: The plastic irrigation hose insulator.

Photo 9: The operating position.

Photo 10: The caravan and solar panels in situ – a wonderful place to operate amateur radio.

My homebrew 'Combo-Star' PIC-a-STAR transceiver

Glenn Percy VK3PE

Photo 1: The finished 'Combo-Star' PIC-a-STAR transceiver.

The photos you see are of a 'home-brew' HF transceiver, built by the author into a recycled instrument case.

The transceiver is heavily based on a design called 'PIC-a-STAR', by G3XJP, which appeared as a series in the RSGB's *RadCom* magazine, and later, in the 2006 RSGB handbook. Power amplifier design is by Steve G6ALU and LPF by Ray G4TZR. Further general information on building a PIC-a-STAR was in the December, 2008 issue of *Amateur Radio* magazine, by Kevin Crockett VK3CKC.

The PIC-a-STAR is an all band HF transceiver offering CW and SSB operation. It can be built as a 20 watt rig or the full 140 watts. Around 80% of the parts used are SMD but this is not a barrier to self-build. There is no kit available though. This is a real DIY project. Many amateurs all over the world have successfully completed a PIC-a-STAR including a number in Australia. Some have also added the six metre band, although this was not part of the original design.

PIC-a-STAR uses a fairly conventional SDR system with down conversion to around 10.7 MHz and then 15 kHz, where it is processed by a DSP device, the ADSP_2181. Many features are available using this approach; all accessed via the front panel controls and in some cases via menu commands as is now common in commercial transceivers. In fact, the flexibility, features and RF performance rival some of the commercial transceivers. The original front panel design used a minimalist approach, having only two controls, a menu encoder and tuning/function encoder. This build expands on that idea by having some additional controls.

In the original design, the control section used a PIC Micro controller and a simple seven segment display. The version pictured has a later controller using an ATMEGA device, designed by Ian G3VPX and, as you can see, a full colour TFT display developed by amateurs also. Other display types can also be used, according to the budget.

The TFT display can be either a 10.9 cm (4.3") or 12.7 cm (5") touch screen, but the 10.9 cm is used in this particular build, as panel space was limited. The case used was 280 mm W x 130 mm H x 350 mm D. Chris Stake in the UK designed the interface board for the TFT with software by Gerard VK3CG. All in all, this PIC-a-STAR is an international design effort!

Rather than use the home etched PCBs favoured by G3XJP as a 'self-learning' exercise, the PIC-a-STAR transceiver pictured

Photo 2: The front panel of the 'Combo-Star' PIC-a-STAR transceiver.

uses commercially made PCBs. The author, the builder of this transceiver, redesigned the various original modules into a single PCB version as can be seen in the underside view. Homemade tin plate shields cover some of the circuitry.

Note that the covers were removed for the photographic session. A 20 watt FET PA drives a 140 watt bipolar PA. The PAs and low pass filter (LPF) are individual PCBs, located on the topside of the central chassis. They are not shown. This build only has front end band pass filters for 80, 40 and 20 metres fitted, but there is provision on the PCB for all HF bands. For lack of a better name, VK3PE christened this single board version 'Combo-Star' meaning a combined PIC-a-STAR, as can be seen on the front panel.

Reference

- *http://www.homebrew-radios.net/trxavr_picastar/trxavr_picastar.htm*

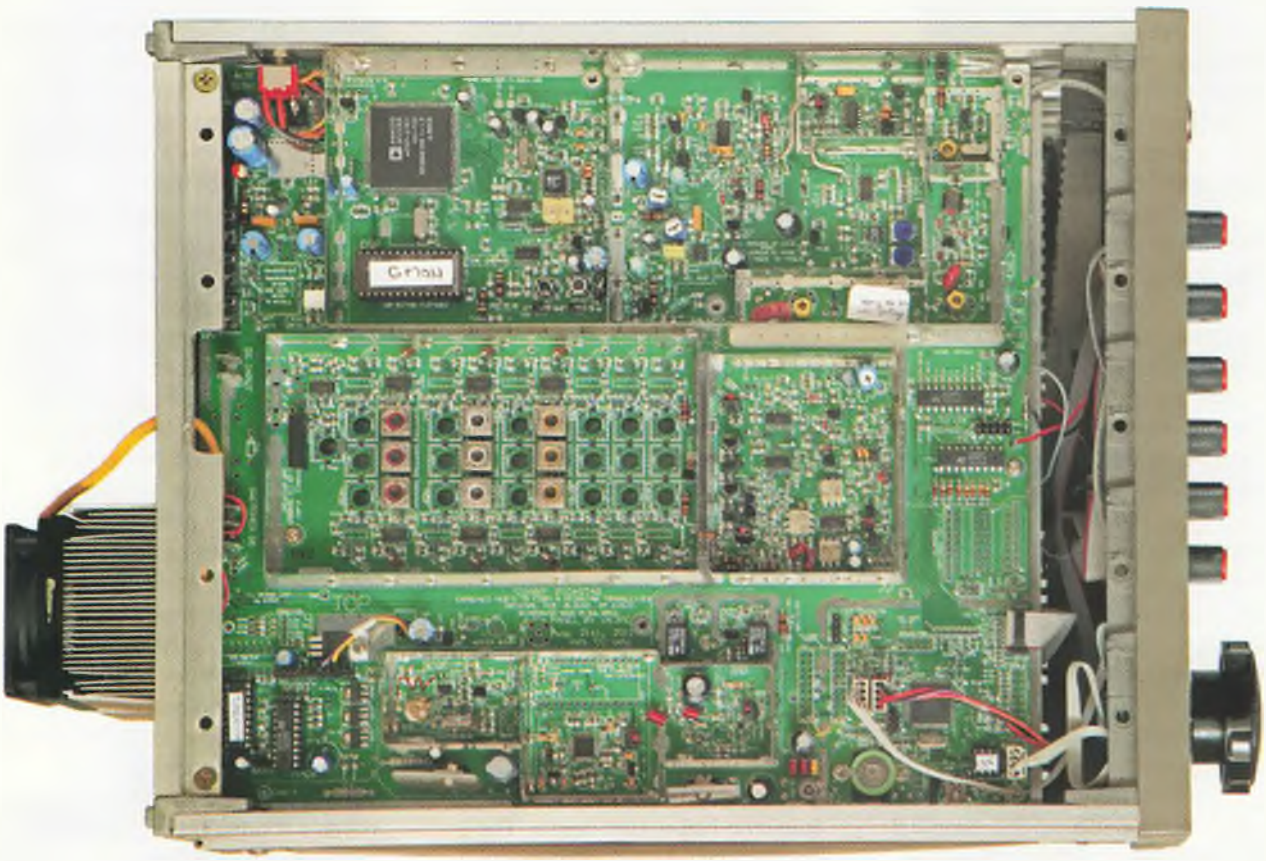
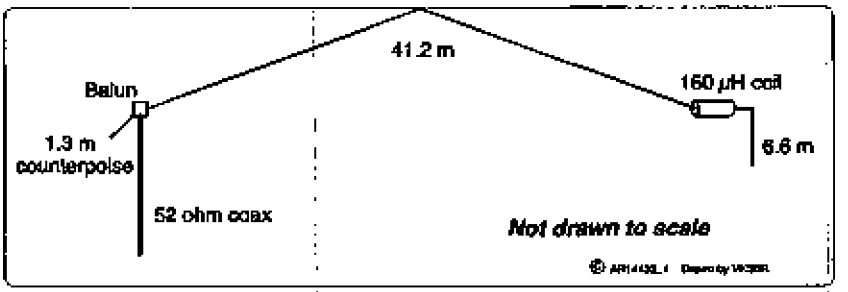


Photo 3: Inside the unit, showing the detail of the transceiver design – and how well it was fabricated.

160/80 metre resonant half-wave end-fed antenna

Wayne Pickard VK2ACY

Here are the details to build your own 160/80 metre resonant half-wave end-fed antenna. It is based on the now proven resonant EFHW design which has gained popularity of recent times, and more specifically, the homebrew version published by PA3HHO which can be viewed at: ***http://pa3hho.wordpress.com/antennes/multiany-band-end-fed-english/***



The 160/80 metre half-wave end-fed antenna.

As the above webpage provides such a clear description of how to build the original 80/40 metre version (which I have redesigned and up-scaled for 160 and 80 metres) it is unnecessary to repeat it here, other than to outline the alterations to the antenna's dimensions and number of balun turns required to achieve a very satisfactory antenna for use on 'top-band' and several of those above it. I would suggest a thorough reading of the above webpage, referring *specifically* to the section entitled: 'My 80/40 version.' The required FT240-43 ferrite cores and enamelled winding wire can be purchased from *Minikits.com.au*

The following modification to the above text's description concerning the winding of the balun should be noted: '... has a...autotransformer using two stacked FT240-43 cores. The core has *five* bifilar windings (= five primary plus five secondary) then 13 more secondary windings, then it crosses the stacked cores and then there's 20 more secondary windings.' Refer carefully to the webpage's detailed photographs showing how the actual balun winding is done. As for the inductor which is installed after the main half-wave (on 80 metres) section of wire, the 160/80 metre version here described requires a 160 µH coil, wound on a 40.6 cm length of 40 mm PVC plumbing pipe (actual OD = 42 mm). It is wound using 0.8 mm enamelled winding wire at a pitch of 14 turns per 2.5 cm, over a total of 35.5 cm, making a total of 196 turns, and then covered with tightly wound PVC electrical tape, or heatshrink tubing. The only other significant change to the PA3HHO description is the use of a 1.3 metre long counterpoise, connected to the 'earthy' side of the balun's (high impedance) *secondary* winding *and* - do not connect the coax's braid and the associated 'earthy' connection of the 50 Ω primary winding to the secondary winding of the balun *at all*. This will prevent unwanted radiation along the length of the outer braid of the coax cable, and associated RF problems ensuing. The counterpoise is adequately long enough to provide a satisfactory 'earth' reference for the high impedance secondary.

Once the antenna is completed, installed, and checked for acceptable SWR on 160 and 80 metres the permanent addition of a 270 pF capacitor across the primary connections to the balun, that is, across where the coaxial cable joins on, will enable operation on the 40 metre band as well, without affecting operation on the lower bands. The antenna thus forms a very effective full wavelength end-fed on 40 metres as well.

My installation of this antenna was as an end-fed 'inverted V,' the middle being 12 metres above ground, and both ends being a little over half of that height. The counterpoise was draped away in the opposite direction to the main antenna wire, sloping at an angle of 45 degrees towards the ground, while the 6.6 metre long 'end section' wire was allowed to drop vertically from the loading coil, due to space constraints. The length of RG-58 coaxial cable used was 24 metres, from the balun to the transceiver - 1.25 mm enamelled wire was used for all of the antenna's wire elements. SWR on 80 metres was better than 1.3:1 across the band, and while bandwidth is somewhat limited on 160 metres, due to the loading coil, the antenna enabled me to achieve an SWR of better than 1.4:1 on my usual operating frequency around 1.840 MHz. An SWR of <1.7:1 was attained across the whole of the 40 metre band, once the required 270 pf capacitor was permanently installed as described. No antenna tuner was required to achieve the actual recorded measurements.

Performance on 160 and 80 metres yielded much the same signal reports as other 'net' stations using full sized dipoles for those bands, and occasionally somewhat better reports than this on 40 metres. Feel free to share and upload this information as you wish, however no responsibility whatsoever will be accepted for any issues or consequences arising. Many thanks to PA3HHO's kindness in freely sharing his original 80/40 metre version's design.

Past IARU Region 1 President now Mountain Goat

Mark Walmsley G0VOF

One of the latest amateurs to attain Mountain Goat as an activator in the popular Summits on the Air programme will be a familiar figure to many in the amateur radio world. This is because he managed to combine his interest in SOTA whilst at the same time holding the post of IARU Region 1 President.

Hans Blondeel Timmerman PB2T who was President up to October last year, has activated summits in no fewer than 15 different countries, spanning the globe. Being from one of the Low Countries does present some challenges to a SOTA activator but the opportunity to travel obviously came in useful for Hans.

He says *"In October 2012 Paul HB9DST introduced K2XYL and me to the wonderful world of Summits on the Air. In that same month I retired, which meant a bit more free time for hiking, one of my wife's favourites, and amateur radio. I have always tried to combine amateur radio with travel. So far I have been active from 80 DXCC entities. SOTA gave me a new start. When there is a chance to operate from another SOTA association I'll give it a try. Of course I am not unique in that respect and there are others who have an even higher association score."*

"A great opportunity to learn more about a country is to go & activate a SOTA with a local amateur. I have fond memories of my SOTA activities in South Africa, Ireland, Macedonia, Lebanon, Romania, Poland and Australia. In all these countries I had the pleasure of having the company of a local amateur with whom I could discuss the scenery, antenna's, radios etc. Experiencing the local cuisine during or after the SOTA activity is highly recommended. In recent months I got too focused on reaching 1000 activator points, It's now time for 1, 2, 4 and 6 point summits which must be as beautiful as their higher brothers."

Congratulations Hans!

Mark Walmsley G0VOF
SOTA Associate Press Officer

Hans PB2T operating from HB/VD-022 Berneuse. Sunshine and some luxury on the summit are highly appreciated!

H.K. Love A3BM/VK3KU

WW1 Fighter Plot, Engineer, Magazine Editor, Explorer, Electronics Developer, WIA Executive

Peter Wolfenden VK3RV

Those of us who have been around in the amateur or communications fields for 40 or more years will know the name, Howard Kingsley Love, but often with a degree of confusion as to exactly who he was. Even his name carried with it some mystery. Was it hyphenated? i.e. Howard Kingsley-Love. Or Kingsley Love, or even Howard Love? It would appear that he used either "Howard" or "Kingsley" as his first name depending on circumstances and seemed to sign off most official documents as H. Kingsley Love! Within the amateur fraternity, he was often referred to as simply "HK". Howard Love was a man of much talent and experience. Born in 1895, it is not known exactly when he obtained his first amateur licence. He is not listed in the 1914 Callbook; however there are reports that he did obtain a licence just before WWI broke out.

Photo 1: H.K. Love (WIA Archive).

In February 1915 he joined the AIF as a 19 year old, giving his "trade or calling" as Electrical Engineer. At that time he was still living at home in St. Kilda and his father counter-signed his enlistment form. On the 17th June 1915, Howard embarked for the war from Melbourne. Serving in the AIF, he ended up as a fighter-pilot in the Fourth Squadron, Australian Flying Corps ranked as a Lieutenant. After quite a bit of flying, he met with disaster in Europe (1).

In April 1918, his English fiancé and her mother, attempted independently to clarify if Howard had indeed been shot down. They contacted a number of organisations including the Red Cross Society, Prisoners of War Committee. News had been received (possibly from a friend of Howard's) that his plane was seen to descend behind German lines, so information of his condition and whereabouts was urgently sought. A few days later, a reply was received dated 23rd April 1918, stating that Lieutenant H. K. Love of the 4th Squadron, Australian Flying Corps was officially reported missing on the 10th of April and that they would let the fiancé know further as information came to hand. Sad news!

A file note dated 5th of June headed *"Prisoner of War"* confirmed that he is interned at Karlsruhe, Germany. At least he was alive! And the note had a distinctly personal slant: "*....This is to inform you I was shot down by machine gun fire from the ground on the 10th April. Although my petrol and machine were badly shot up, I got safely out of the wreck."* The report finishes with: *"Certified by extract from copy of letter from man to Headquarters dated 24/4/18."* Howard returned safely to England in December 1918 (2).

Back in Australia after the war, Receiving Licences started to become available from late 1919, however, Transmitting Licences were not generally available until late 1922. Howard was one of the early experimenters post WWI to become licensed and is recorded as 3BM in a 1923 callsign listing. He was a great friend of Ross Hull one of Australia's foremost experimenters at that time and both were deeply involved with the WIA. They teamed up as editors of a new magazine, *"The Radio Experimenter and Broadcaster"* which was published in Melbourne from December 1923. This magazine also proclaimed that it was the "Official Organ of the Wireless Institute of Australia". In the June 1924 edition, the editors declared the necessity for accuracy in claiming long distance achievements and that an organisation such as the WIA should organise a suitable scheme for this without delay! The other subject covered on the Editorial page was the outstanding work of

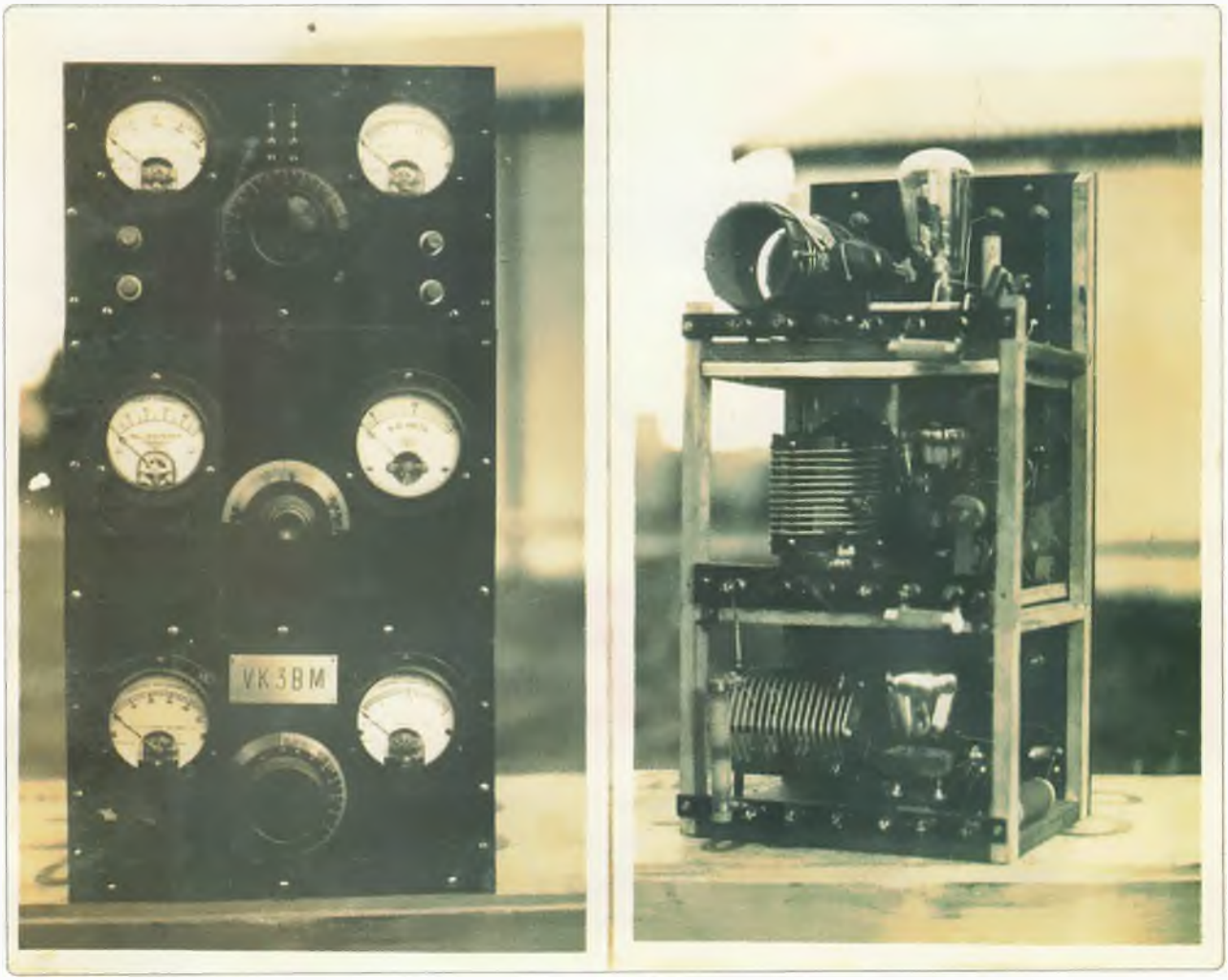
Photo 2: VH-UGF Aircraft the "Love-Bird" (WIA Archive).

amateurs in opening up the short-wave bands and their need to retain hold on their frequencies as the commercial wireless world had been awakened to the possibilities. "....

Experimenters should now strive to shorter waves in the region of 50 metres!" These were indeed "heady times" for the amateurs in all parts of the world, so much was going on and history was being made almost daily!

H.K. Love and the WIA were also making history. In that very same issue of the magazine, a report was published of the First Australian Wireless Convention which was held in conjunction with a wireless exhibition at the Melbourne Town Hall on 24th May 1924. This was really the first official coming together of the individual State WIA organisations - on their way to forming a Federated organisation. Howard Love was elected as Chairman of the meeting at which reports were received about activities and problems encountered in various parts of the country, a basic structure was established and the next national meeting was set for the following year in Perth.

Photo 3: 3BM Transmitter made by 3WG as used in VH-UGF (WIA Archive).



1929 saw the establishment of the **RAAF Wireless Wing**. According to Group Captain E.R. Hall in his book *"A Saga of Achievement – The RAAF Radio Story"* H.K. Love was the initiator of this unique organisation which functioned under the auspices of the WIA. Hall wrote:

"In 1929 Flight Lieutenant H.K. Love, a radio engineer and a member of the Citizen's Air Force, was the President of the Wireless Institute of Australia and submitted to the Air Board proposals that amateur wireless stations and operators should be organised with a view to their use by the RAAF in peace and war. The Air Board realised the possibilities of such a scheme and approved the proposals and the formation of the RAAF Wireless Reserve".

Photo 4: Multiple AR7s at RAAF monitoring Station Werribee from WWII Magazine advertisement.

But by March 1933, the Reserve had slipped in direction and status. This was probably due to a multiplicity of reasons on the part of both the amateurs and the RAAF which in itself still had some doubt or distrust of radio communications. However, a decision was made to restructure the Reserve as in many ways it was performing as best it could under the circumstances, and the potential of such an organisation could still be seen (3).

Part of the restructure involved Bob Cunningham VK3ML and Vaughan Marshall VK3UK taking control the Wireless Reserve, *"... which was later organised in Districts, the Districts corresponding in their boundaries to the States of the Commonwealth. Each District was organised into Sections with each section consisting of a number of Reserve members with their stations. In 1935 the Districts were controlled by E.B. Ferguson (VK2BP) in New South Wales, V.E. Marshall (VK3UK) in Victoria, A.E. Walz (VK4AW) in Queensland, F.M. Gray (VK5SU) in South Australia, S.J. Madden (VK6MN) in Western Australia and R.F.H. Cannon (VK7RC) in Tasmania."*

Both Cunningham and Marshall were promoted to Flying Officers and they were the only commissioned members of the Wireless Reserve. By the 21st of July, 1939 there were 155 members of

Photo 5: VKZ QSL Card (WIA Archive).

The official badge of the RAAF Wireless Reserve authorised in 1935

Photo 6: Wireless Reserve Wings badge (WIA Archive).

the RAAF Wireless Reserve and all these amateur operators were called up for active service at the outbreak of WWII (4).

During the early 1930s, Love became involved in the Mackay Aerial Survey Expeditions of Central Australia and was chosen to be the wireless operator. The 1930 expedition was the first occasion for such an aerial survey and the first time that some of this inland country had been visited by a white man. The expedition was privately funded and two planes were leased from Larkin Aircraft Supply Company of Melbourne after the intended plane, a Lascondor, a three engine monoplane crashed a couple of days before the expedition was due to depart! The "new" planes were manufactured by the Air Navigation and Engineering Company of Alderstone, Surrey UK in 1926. Known as ANEC III - Lasco Lascowl, they were six-seaters and powered by a single 485 h.p. Armstrong Siddeley Jaguar power plants.

Bill Gronow VK3WG, a future WIA Divisional and Federal President installed a radio system into at least one of these aircraft, VH-UGF known as "Love Bird". The transmitter was quite compact for its time, measuring about 600 mm x 250 mm x 200 mm deep and powered by external wind driven generators. A 1932 callsign listing, shows three Wireless Institute Stations at the Essendon Aerodrome at that time, VK3WS, VK3WT and VK3WU although 3WI was also used, but not for the expedition. The ground receiving was handled by the well-known Hutchings family Alan VK3HL and Mrs Hutchings VK3HM of Callawadda together with Ivan Hodder VK3RH and Jack Sharp VK3KA in Melbourne (5, 6, 7).

Before departure, Prime Minister Scullin together with other MPs entertained all members of the expedition at lunch in Parliament House. At that luncheon, Mr Scullin said:

"Although the flight is a private one, the work which it is proposed to do is of national importance, and the people of Australia must feel indebted to Mr. Mackay for his public spirit in providing the necessary funds and himself leading the expedition."

The Survey was considered a great success with many maps of outback Australia resulting, however it all went largely unnoticed by the press and therefore the public! (8, 9)

Howard flew on a further similar survey in 1933, again serving as wireless operator. This time, at the suggestion of the Civil Aviation Department, he took three transmitters and four receivers, including short-wave sets *"to make some exhaustive wireless tests under desert conditions"*. An additional wireless operator, J. Fuller, was added to the expedition by the leader, Donald Mackay. He was associated with the second aircraft. At Alice Springs, the party was met by Joe Kilgariff a local who at that time had a licence, VKZ, for communicating with outback expeditions. He relayed a number of Mackay expedition messages. The WIA Archive holds a VKZ QSL card from 1934 which was for a contact with a VK5 amateur. Joe moved to Adelaide and became President of the South Australian Division (1937-39). He held the callsign VK5JT (9, 10).

World War Two was looming and Howard found himself suddenly involved in war related work. This time, not as an active serviceman, but rather helping those who were directly involved. Kingsley Radio at their St. Kilda Rd. factory, and a company managed by H.K. Love, had been developing mass production techniques for high quality receiver ferrites and also sintered bronze products including oil impregnated bronze bearings. This was cutting edge technology at the time, which brought with it, a degree of hazardous production techniques.

During 1938, the RAAF anticipated difficulty in obtaining receivers from overseas and issued a technical specification for a general purpose ground receiver. Love tendered for it and obtained the contract for the manufacture and supply of AR7 receivers (also known as Kingsley KCR-11). These were not unlike the American HRO which was initially developed for the amateur market, but found extensive use in other war-time activities such as the English "Y"

Service, associated with the famous code breakers at Bletchley Park (11).

According to Hall in *A Saga of Achievement*: *"The AR7 was an outstanding medium and high frequency ground communication receiver which was used extensively by the RAAF and also used by the New Zealand and United States Services. The 3500 AR7 receivers manufactured during World War II gave valuable service in signals offices throughout the Australian Mainland and the Islands in the South West Pacific Area."*

The RAAF receiving station at Werribee had a bank of over 50 AR7 receivers installed during WWII. Following the war, the AR7s with their precision Vernier type central tuning control (manufactured by specialist engineering firms associated with the motion picture projector industry), plug in coil boxes for band switching and two RF amplifying stages were extensively used by the Department of Civil Aviation on mainland Australia and in PNG They were also eagerly sort by radio amateurs – after all, "a hot receiver" designed and built by a well-known local amateur was worth having! (12)

Kingsley Radio closed down in 1948 after Howard's sudden death. The directors apparently felt that without Howard's broad knowledge and input, the company could not survive!

Howard Kingsley Love VK3KU, a man of great drive, leadership, enthusiasm and skill was sadly lost to Australia.

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Photo 7: Kingsley Radio Adv WWII.

VK2 news

Tim Mills VK2ZTM
e *vk2ztm@wia.org.au*

Over Easter, the annual Urunga Radio Convention will be held at the NSW north coast village from Friday evening through to Sunday afternoon. This annual event – the 67th – has been held since 1949. For information contact Ken Golden VK2DGT *krgolden46@hotmail.com* The annual event is promoted as the Fox Hunting Field Day of Australia.

The next Foundation and assessment weekend for both ARNSW and Waverley ARS will on Saturday 23rd and Sunday 24th May. You need to make a booking with either via their education@ email addresses. Waverley ARS offers scholarships to under 25 year old Australian citizens to obtain their first licence. The ARNSW upgrade course commenced last month on Monday evenings at the VK2WI site. It may be possible for late entries to attend. Please note that there is no class on Easter Monday. On upgrade class nights, the ARNSW Library team are in attendance with the cataloguing operation now well advanced.

ARNSW will be holding their AGM on Saturday the 2nd May 2015 in the Centenary Building at 63 Quarry Road Dural with a 10 am start. Most members will receive the reports by email. There are a few paper copies still to be mailed out but with ever increasing costs, electronic mailing will become the only delivery method in the near future. Committee nominations closed last month.

Curtain adjustment time in VK2 and a few other States will occur on Easter Sunday morning. VK2WI news sessions will maintain the local time of 10 am and 7.30 pm. Last month ARNSW held a lecture field day. The next scheduled field day will be 28th June 2015.

The ARNSW Development Fund for clubs has been open since February. Applications will close at 4 pm on Friday 10th April. Guidelines and application forms are on the ARNSW web site *www.arnsw.org.au* No late submissions will be considered. ARNSW produced several batches of name badges earlier in the year. A further intake is underway and applications may be made to *office@arnsw.org.au*

On Feb. 28th – Mar. 1st, ARNSW held a Foundation Weekend, with exams for all grades held on the Sunday. The photo shows the happy success candidates, from Left to Right, Mark (Foundation), Mike (Advanced), Anthony (Foundation), Richard VK2FBSP (Advanced), Garry VK2GAZ (Future Trainer), Aleksander (Foundation) and Stuart VK2FVSW (Regulations).

The annual Central Coast field day at Wyong was held in late February, billed as the largest of its kind in the Southern Hemisphere. The day started a bit damp first thing in the morning, which then gave way to a sunny afternoon. Attendances still seemed about normal but a few traders were absent this year. Foundation and upgrade assessments were held over the weekend with a total of seventeen candidates being put through.

The Taree club recently upgraded their 70 cm VK2REE repeater at Mt. Marie with antennas and feed lines fitted to the new tower. Check it out and provide reports to the club. Look for it on 438.325 MHz on the standard 5 MHz offset. No tones are required.

Three month Solar Flux Index reports being supplied by Noel VK2FUL are being aired weekly on VK2WI News.

Westlakes ARC is open every Saturday from 11 am at their York Street club rooms. General meetings are on the first Saturday of the month. A 40 metre net on Monday, Wednesday and Friday at 9.30 am on 7.150 MHz.

The Hunter Radio Group meets on the second Friday evening February to November, usually at NBN TV. They operate repeaters under the call VK2RNC on 146.900; 146.975 with echo link and 438.025 MHz. There is also a 6 metre beacon, VK2RHV, on 50.288 MHz.

The Blue Mountains ARC recently commenced an upgrade course on Wednesday evenings in the club rooms at 4 Moore Street, Glenbrook. The ARNSW Radio Home Brew and Experimenters Group meet on the first Tuesday evening of the month at Putney. They have a net on 2 metres and HF – 3686.4 and 7159 kHz – on the third Tuesday evening and have a gathering after the bi-monthly Trash & Treasure at the VK2WI Dural site. It is just two months until the annual Oxley Region ARC field day at Port Macquarie over the June holiday weekend. Hornsby & District ARC will be active on April 25th with the International Marconi day.

73 – de Tim VK2ZTM.

VK1news Canberra and Region Amateur Radio Club

Pieter Kloppenburg VK1CPK

The Canberra and Region Amateur Radio Club (CRARC) has appointed a new committee at its AGM on February 25, 2015. The members include: Amanda Hawes VK1WX President, Glen English VK1XX, Matthew Hatfield VK2FMDH, Robert Smith VK2HR, Pieter Kloppenburg VK1CPK Secretary, James Graham VK2JHG, and Matthew McNeil VK1MA.

The new committee consists of radio amateurs, all of which having a wide range of experience in amateur radio and are committed to provide the membership with interesting activities and programs during the year.

These will include field days, foxhunts, nets, social events, ham fests and emergency drills. In addition, to be continued this year, is the successful program of invited speakers covering a range of communications topics.

CRARC provides various services to its members. Among many others, they include Open Tech Nights where you can come along to have technical questions answered; obtain technical help or advice about the many aspects of amateur radio. On the third Wednesday of the month, Ingmar Meins VK1BGT opens the doors at 7:30 pm and then stands ready with help and advice. The address is Mt Mugga Scout Hall, 17 Astrolabe St., Red Hill, 2603.

It is understood, that the club provides complete support for the Foundation licence entry into amateur radio.

One other important service that the club provides is the Repeater Network. It operates at various frequencies and bands in diverse modes at a number of locations in the Australian Capital Territory (ACT). These are Mt Ginini, Bulls Head, and Isaacs Ridge.

The club's beacon service has begun with the 2-metre beacon on 144.410 MHz.

For detailed information about the club and its services, you can log on the website on: *http://www.crarc.ampr.org* this site provides you with the means of finding out more about the club and its services and where you find an email address for direct access to the club's committee.

To finish, the club operates a reflector, aptly named VK1-Reflector. Its URL is *www.crarc.ampr.org/pipermail/vk1-reflect*

Have fun.

Pieter VK1CPK

AMSAT-VK

AMSAT Co-ordinator
Paul Paradigm VK2TXT
email: *coordinator@amsat-vk.org*

Group Moderator
Judy Williams VK2TJU
email: *secretary@amsat-vk.org*

Website:
www.amsat-vk.org

Group site:
group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial amateur radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station, Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft.
AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly net

Australian National Satellite net

The net takes place on the 2nd Tuesday of each month at 8.30 pm eastern time, that is 0930 Z or 1030 Z depending on daylight saving. Check-in starts 10 minutes prior to the start time. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales
VK2RBM Blue Mountains repeater on 147.050 MHz

In Queensland
VK4RIL Laidley repeater on 147.700 MHz
VK4RRC Redcliffe 146.925 MHz IRLP node 6404, EchoLink node 44666

In South Australia
VK5TRM, Loxton on 147.175 MHz
VK5RSC, Mt Terrible on 439.825 MHz IRLP node 6278, EchoLink node 399996

In Tasmania
VK7RTV Gawler 6 metre repeater 53.775 MHz IRLP node 6124
VK7RTV Gawler 2 metre repeater 146.775 MHz IRLP node 6616

In the Northern Territory
VK8MA Katherine 146.700 MHz FM

Operators may join the net via the above repeaters or by connecting to EchoLink on either the AMSAT or VK3JED conferences. Past experience has shown that the VK3JED server offers clearer audio. The net is also available via IRLP reflector number 9559. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email. Frequencies and nodes can change without much notice. Details are put on the AMSAT-VK group site.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repealers in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. Currently only SO-50 is available.

Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

VK3 news Amateur Radio Victoria

Jim Linton VK3PC
e *arv@amateurradio.com.au*
w *www.amateurradio.com.au*

Lake Boga Museum joins ANZAC 100

The Royal Australian Air Force Flying Boat Museum at Lake Boga in northwest Victoria will be active on the ANZAC Day weekend April 25-26 and looking for contacts under its VI3ANZAC callsign.

Flying boats were used during World War II and the RAAF had its No. 1 Flying Boat Repair Depot at Lake Boga.

A Lions Club Catalina Museum project is a memorial to those who worked on and with the Flying Boats during World War II.

A rebuilt A24-30 Catalina and photos are on display and an adjacent Communications Bunker resembles the war-time era.

Thomas Brownstein VK3EO has regularly been active from the bunker. He will be joined on the ANZAC weekend by others and two stations are due to be on air from the location.

As instructed by the WIA, the special callsign VI3ANZAC will remain silent during a commemorative broadcast on the amateur radio bands from Canberra.

The bunker station uses a dipole for 40 m and 15 m, and it will be joined at the time by an outside station with an HF beam.

Listen for VI3ANZAC mainly on 40 m - 7.010 MHz, 7.095 MHz, 20 m - 14.010 MHz, 14.095 MHz, 15 m - 21.095 MHz, 21.250 MHz, +/- QRM, but may pop up on other frequencies depending on propagation. The stations will be on air until 1700 local time, but this may be extended.

Like all ANZAC stations it will issue eQSL cards for all contacts, which can also qualify towards the ANZAC Centenary Awards.

The far eastern Victorian Croajingolong National Park has forest foothills and wilderness coastline. Its name comes from the Aboriginal ***Krauatungalung*** *words* ***galung****, meaning 'belonging to' and* ***kraua****, meaning 'east'.*

The VI3ANZAC activation is by Amateur Radio Victoria, with help from the Sunraysia Radio Group.

All National Parks in WWFF

The World Wide Flora and Fauna Award (WWFF) now recognises the last four Victorian National Parks, but their inclusion is not yet retrospective. This means prior QSOs from the four don't count for the WWFF program, they have to be re-activated for that Award.

Until now only 41 of the 45 Victorian National Parks in the Keith Roget Memorial National Parks also qualified for the WWFF Award. The situation was not due to a lack of conservation merit, but merely a quirk because the parks were gazetted after the WWFF rules were established.

Thanks to the Australian WWFF program coordinator, and also the VKFF Award Manager, Paul Simmons VK5PAS, from February 11 each of the parks have been added, and given their own award number.

Barmah is VKFF-739, Gunbower VKFF-740, Lower Goulburn VKFF-741 and Warby Ovens VKFF-742. The remainder of the Victorian National Parks already qualify.

Award Manager Tony Hambling VK3VTH says that is good news and will make those National Parks even more popular.

The latest KRMNPA certificates have gone to Fred Swainston VK3DAC who has 15 Worked (Basic Award) and VK5YX Hans Smit VK5YX 10 Worked (Basic non-VK3 Award).

Earlier, those receiving the KRMNPA Merit Plaque were Bernard Petherbridge VK3AV and Paul Simmonds VK5PAS, with all 45

National Parks Worked. Well done to all of you.

Publicity for our hobby

The on-going promotion of amateur radio both internally and externally includes at least three separate successful events.

The first has been the 'marine mobile' trip on MS Celebrity Solstice by the Australian Ladies Amateur Radio Association using the Internet Repeater Linking Project.

ALARA made 40 contacts after leaving Sydney's Circular Quay, travelled down to Hobart in Tasmania for two days, then across to New Zealand, using IRLP enabled repeaters.

Then three metropolitan primary school libraries were exposed to the hobby thanks to library technician Julie Gonzales VK3FOWL who has been active in many portable activities.

In her introduction to students from 8 to 11 years of age, she had a plain language simple booklet with callsigns, operating procedures, Morse code, Q-codes and log keeping.

Outdoor activities like antenna building and Amateur Radio Direction Finding are also offered. The feedback from principals, parents and students has been so positive.

Another example is the WIA campaign of special call signs to mark the Centenary of ANZAC that continues until December.

Foundation training & assessments

Enrolments close soon for this month's Foundation licence weekend held on April 18-19 at the Amateur Radio Victoria office 40g Victory Boulevard, Ashburton.

These quality and well equipped theory, regulatory and practical courses have a requisite of all having read the operational practice guide book "Your Entry Into Amateur Radio" Foundation Manual, which is available by mail order from our online shop for $26.

To inquire about further details or to enrol please contact the Education Team Leader, Barry Robinson VK3PV on email: *foundation@amateurradio.com.au* or phone 0428 516 001.

GPS locked beacons

The custodians of several Victorian beacons have opted to have their frequency GPS locked, instead of the tradition crystal and multiplication method, and qualify for a limited time grant.

Many beacons have thermal frequency drift. This can be crucial during the heat of summer and the peak-time for tropospheric ducting propagation.

It can hamper those who want to push the boundary by using weak signal techniques and build on their skills by exploring propagation.

Some beacons are already GPS locked. The WIA and Alan Devlin VK3XPD have a bonus of up to $200 bonus for each beacon site that is GPS locked. Full details of the grant requirements have been issued, but it closes on June 1, 2015.

Recently VK3RGI East Gippsland on 144.434 MHz qualified with it putting out a solid signal at 10 watts into an omni-directional halo antenna.

VK3RMB Ballarat on 432.536 MHz 1296.536 MHz has been upgraded. They share a common 'platform' but there is still an issue with the 1296 MHz beacon that needs resolution. Four other VK3 beacons have registered but not yet achieved GPS locking.

Alan VK3XPD found that some newly GPS locked beacons are not exactly on frequency, but the actual error is very minor, being units of Hertz only - and that is good enough. Those beacons not locked can drift many hundreds of Hertz over a daily thermal cycle. More beacons are welcome to register the intention to upgrade, and if completed by the deadline may be eligible for the grant.

VK6news

Keith Bainbridge VK6RK
vk6rk@wia.org.au

These months certainly come around quickly! February has been a busy month for me personally, re-vitalised with my 23 cm EME activity, frantically building my dish, feed and amp to get on air.

Meanwhile in the Hills things are quiet with Bill VK6WJ away on holiday, so here is the update from them regarding the upcoming HARGfest.

Hello from **HARG** The Hills Amateur Radio Group.

Just a reminder that HARGfest will be held on Sunday 12th April 2015 at the Lesmurdie Hall at 96 Gladys Road, Lesmurdie. Sellers at 9.00 am, buyers at 10.00 am, raffle at 1.00 pm and close at 2.00 pm. Food and drink will be available including the famous HARG Burgers.

Our regular stall holders will be there: Fritz VK6UZ with his components, TET-Emtron with antennas, WARG with pogo stick antennas and coax cables, HAM College, NCRG, VHF Group, the WIA and the QSL Bureau. This year we also have SOTA, Steve VK6SJ with some Comet and Benelec products and Richard VK6BMW with lots of interesting things.

Thanks to the generosity of Ian Garnett VK6LCT at Timberden Plant Hire, we have a Yaesu FT-7900R dual band mobile as the first prize and a Yaesu FT-60R dual band hand held for the second prize. Third prize is an IRODA gas soldering iron donated by Altronics. We will have the usual door prizes thanks to Mark at TET-Emtron.

For more information or to book the last few tables please contact Richard VK6BMW at *secretary@harg.org.au*

Cheers and 73 until next time from Bill VK6WJ Publicity Manager for HARG. I believe table bookings went very quickly, so it should be a busy event again this year.

Now it's time for the **Bunbury Radio Club's** latest news, over to Norm VK6GOM:

Over the last month some of our members have been involved with the numerous bushfires in the region. It has been a busy year for those guys and the club

Photo 1: The group gathered outside the venue for the Katanning Ham Feast.

acknowledges the effort put in by those members.

On 18 April 2015, we will be running assessments for members and others who wish to sit for their Foundation licence or upgrade their existing qualifications. At this stage we have eight names listed for those assessments and anyone else interested in attempting the exams should contact Norm VK6GOM on 0438 878 582.

There has been some formal interest in setting up a repeater at Collie and our erstwhile scouts are investigating possible sites. It is stressed that this is early days and much is to be done if we are to proceed on a more formal basis.

Following the theft of equipment from the HARG Clubhouse, BRC has decided it would be prudent to review our assets and insurance coverage.

Last month the club held its meeting at Collie at the QTH of Darren (VK6FGWN). Those who attended reported that it was a great day and this resulted in the recruitment of a new member, Ian. Clearly the idea of holding meetings at locations other than Bunbury is generating quite a lot of support and interest.

Any South West based amateur (or anyone interested in radio or electronics) is more than welcome to join and participate in our activities. The annual fee is only $25.00. Those wishing to join can contact the Club via our Secretary, Brian Andrews, on 0403 975 953 or *vk6brc@wia.org.au*

Thanks Norm, those bush fires in the south were indeed terrifying.

Also in the south the **Southern Electronics Group** held their annual "Ham Feast" and here is a report from Rob VK6LD:

Hello All,

The Katanning Ham Feast was held on Wednesday 28 January 2015 at Oscar's Café in Katanning.

I think I counted 23 or 24 sitting down for lunch, with people travelling in from Manjimup, Boyup Brook, Busselton, Yallingup, Bunbury, Denmark, Albany, Mt Barker, Broomehill, Mandurah and Perth for the day to join fellow hams in Katanning.

The meals were tasty and enjoyable and some even dined on dessert afterwards. The conversation was lively and topped off with refreshing drinks (as it was warm outside).

A great time was had by all, so a big thank you to everyone who travelled to Katanning as you all made the day fantastic.

Thanks also to the staff at Oscar's Café at the Royal Exchange Hotel for looking after everyone and keeping us fed and watered.

If you enjoyed the day or couldn't make it this time, the next Ham Feast will be held in Manjimup around July 2015 (exact date TBA). I might also try to arrange something in Albany or Denmark or in between.

The group photo was taken by Duncan VK6GHZ from *Showcase Photographix*. Thanks to Duncan! If you would like a copy of the image sent to you, please let me know and I will e-mail it across.

Thanks once again everyone and look forward to seeing you at the Manjimup Ham Feast!

73 Rob VK6LD

Photo 2: Antenna activity at NCRG. President Stu VK6LSB our licenced rigger at the top of the mast fitting the first of the 15 m modified beams.

I had planned to go myself this time, but work interfered as usual (Never mind, there will be plenty of time when I eventually retire).

It's a pretty quiet month all round it seems with no other reports coming in so I will wrap things up with an update from the **NCRG.**

The past month has seen a lot of antenna activity at the club, mainly concerning 15 m and 10 m beams.

The planned 5 over 5 over 5 Yagi on 15 m has been re designed and more gain found by extending the boom slightly and reducing the elements to four but wider spaced. The slight gain increase over the original designs added to the lower wind load will make for a better stacked system. The same will be done to the 6 element on 10 m, reducing it to 5 elements but wider spaced, then adding a second identical stacked Yagi. Hopefully the weather will cool down soon to allow more external antenna work to take place.

The club tower trailer is almost completed and will hopefully be available for the clubs activities in the John Moyle Field Day.

The hire of a cherry picker is planned in the next few weeks, so hopefully by the time this appears in the magazine the four square on 80 m will finally be finished.

In mid-February a few of us from the NCRG had a meeting with Bob KK6EK, of Cordell Expedition fame, the leader of the upcoming **Heard Island DXpedition.**

He visited the club while on a short fact finding tour to Fremantle in preparation for their departure from the Port around 10th November 2015.

It was a most interesting evening which resulted in the NCRG being appointed to assist this end of the supply chain, in any practical way we can. More details will be on the Heard Island website at *vk0ek.org*

Photo 3: (L to R) NCRG members Keith VK6RK, Stu VK6LSB, Andrew VK6IA, Wayne VK6EH with Bob KK6EK.

as they become available.

In last month's VK6 Notes I commented on the VK6RIO beacon and that I hoped to have some positive news this month. Well it hasn't happened so far I'm afraid; we are still waiting for the donation from ZS before we send the completed beacon over there. I had hoped my comments would shame the SARL into action but they fell on deaf ears. The Port Elizabeth Radio Club is still trying to fund raise I believe so maybe next month there will be something positive to report.

So not too much to report this month, hopefully the various groups around the state will have some input for me in time for the next edition of VK6 Notes.

Until then Gud DX and 73,

Keith VK6RK

Participate

Hills Amateur Radio Group - HARGFEST | 12 April

The ANZAC 100 activities begin

Fred Swainston VK3DAC - ANZAC 100 Coordinator

The Wireless Institute of Australia (WIA) will facilitate all radio amateurs who wish to use their hobby as part of the Centenary of the landing of ANZACs at Gallipoli 100 years ago.

The major events start on April 25, which is the date in 1915 when Australian and New Zealand troops landed at Gallipoli.

The ANZAC Centenary is a milestone of special significance for all Australians. WWI helped define us as people and as a nation. We remember not only the original ANZACs who served at Gallipoli and the Western Front, but commemorate more than a century of service by Australian servicemen and women.

The ANZAC Centenary is a time to reflect on all wars, conflicts and peacekeeping operations in which Australians have been involved. It presents a further opportunity to honour the service and sacrifice of all those who have worn our nation's uniform, including the more than 102,000 who have made the supreme sacrifice.

The commemoration aims to encourage all radio amateurs to reflect on and learn more about our wartime involvement, its costs and its impacts on the nation.

A series of historical articles will appear in the WIA journal, *Amateur Radio* magazine, which were the results of searching the WIA historical archive for additional unpublished material, piecing together information, unearthing facts as well as the generous donations of material.

While radio amateurs in WWI and WWII have been covered, missing are reports on activities by them during Korea, Vietnam and other conflicts. If you can help with this information please contact the WIA Historical and Archives Committee Leader, Peter Wolfenden VK3RV.

VK100ANZAC broadcasts the opening

The Wireless Institute of Australia (WIA) will have a special broadcast using VK100ANZAC on ANZAC Day. That national callsign will also be heard until December 20 for significant anniversaries, other events, venues and even a few contests as a non-scoring station.

On April 25, a pre-recorded address by a notable Australian will be heard from Canberra. The New Zealand Amateur Radio Transmitters (NZART) and the Telsiz ve Radyo Amatörleri Cemiyeti (TRAC) have been invited to join this special broadcast.

The NZART and TRAC are ready for an ANZAC Day contact that will involve all three who were involved in the war at Gallipoli. This may be via HF if possible, or via the Internet if propagation conditions are unfavourable.

After the VK100ANZAC broadcast there will be no on air call back session, no QSL is provided, and having heard the event does not qualify towards the Centenary Award.

However it will be very memorable and an appropriate start of what is going to be a commemoration of the ANZAC spirit.

Many events will be held to commemorate the ANZAC Centenary, including Gallipoli itself where ANZAC troops fought for eight months.

Right around Australia young men enlisted in WWI, and never returned. Many towns have a memorial to that tragic loss, and a few have trees planted as an Avenue of Honour.

The Office of Australian War Graves helps maintain and restore the many cemeteries and official memorials overseas and within Australia, for WWI and WWII.

Whether at Gallipoli or many at other theatres of war - Australia remembers and honours those servicemen and women. ANZAC Day is part of the Australian psyche - *Lest We Forget.*

VK state & territories on ANZAC Day at a glance

Seven VI*ANZAC stations will heard on ANZAC Day and for up to a week afterwards. Contacts by them are to be acknowledged by eQSL and qualify towards the ANZAC Centenary Award issued by the WIA. Below is a summary of each of these callsigns.

VI2ANZAC: The Blue Mountains Amateur Radio Club will activate the event on the HF bands. Listed as the organiser of this commemorative event is Daniel Cleft VK2DC, who with other members from this active club, will have the callsign on air.

VI3ANZAC: The Flying Boat Museum at Lake Boga in northwest Victoria on the ANZAC Day weekend April 25-26.

The RAAF had its secret No. 1 Flying Boat Repair Depot during WWII, which is now the Lions Club Catalina Museum as a memorial to those who worked on and with the Flying Boats.

Two stations will operate, one inside the Communications Bunker and the other just outside it, by Amateur Radio Victoria, with help from the Sunraysia Radio Group.

VI4ANZAC: This is to commemorate our service personnel on ANZAC Day and beyond, a respective effort of those who served the country in times of war. In its final planning phase by David McLean VK4EE and more details are expected.

VI5ANZAC: The Amateur Radio Experimenters Group

will activate on the HF bands. Members from the active club will put the callsign on the HF bands for all and looks to make many contacts.

Operation begins after AREG carries the VK100ANZAC broadcast on local repeaters and broadcast frequencies.

VI6ANZAC: Activated by the Scout Member Amateur Radio Team at Kings Park, near the State War Memorial where around 50,000 people gather for the Dawn Service.

Rover Scouts maintain an all-night vigil at the War Memorial, a tradition now in its 81st year, and a portable Amateur Radio station will later fire up.

An address by the Western Australian Governor General, Kerry Sanderson AO, will be broadcast over VK6 repeaters and selected HF frequencies. Listen for a very active VI6ANZAC on the bands.

VI7ANZAC: Put to air by Vincent Henderson VK7VH who will use the HF bands from his QTH in West Moonah, Tasmania.

The event will include audio files of ANZAC veterans and a detailed history that will be read on air as one minute segments.

A fine effort by VI7ANZAC that will be looking to have many contacts on 80 m, 40 m, 20 m and 15 m throughout VK, ZL and the world.

VI8ANZAC: The top end is again in the ANZAC spirit with a commemorative event held by Simon Rice VK8ZJZ. Listen for VI8ANZAC that will be activated on ANZAC Day and for a week.

Some state/territory ANZAC callsigns and VK100ANZAC will also be heard marking other events up until December 20.

For more detail listen to the VK1WIA Sunday broadcast and visit the WIA website *www.wia.org.au*

Suggested calling frequencies

Band	Digital	CW	SSB
160 m	1805kHz	1825kHz	1850kHz
80 m	3.630MHz	3.530MHz	3.585MHz
40 m	7.040 MHz	7.010 MHz	7.095 MHz
30 m	10.145 MHz	10.110 MHz	10.120 MHz
20 m	14.095 MHz	14.010 MHz	14.250 MHz
17 m	18.095 MHz	18.105 MHz	18.115 MHz
15 m	21.095 MHz	21.105 MHz	21.250 MHz
12 m	24.925 MHz	24.895 MHz	24.935 MHz
10 m	28.055 MHz	28.025 MHz	28.450 MHz
6 m	50.225 MHz	50.500 MHz	51.150 MHz
2 m	145.000 MHz	144.050 MHz	144.150 MHz

Other bands and modes by arrangement. EchoLink will be used by the Turkey Amateur Radio Society (Telsiz Radyo Amatorleri Cemiyeti – TRAC) on ANZAC Day.

Also in Turkey is Commemorative station TC100GLB that will be QRV until April 30 to commemorate "Gallipoli" 100 years ago. Activity will be on the HF bands using SSB, RTTY and PSK. QSL via TA1CM.

eQSL for all QSOs

All contacts with VK100ANZAC or VI*ANZAC stations will be answered with an outwards eQSL.

No inward QSL cards are encouraged. All ANZAC-prefixed stations will mention these requirements. For more information and online registration to receive the electronic card visit the website eqsl.cc/

The VK100ANZAC eQSL is of a symbolic design, and the State/Territory eQSL are subsets of it. The design has been approved by the office of the Department of Veteran Affairs Minister.

AX prefix available for 48 hours

The Australian Communications and Media Authority (ACMA) will allow all VK radio amateurs to substitute the AX callsign prefix for up to 48 hours, in recognition of the 100th anniversary of the landing at Gallipoli.

So more radio amateurs can be involved in ANZAC 100 events, the ACMA has agreed that AX may be used on both April 25, and 26 this year.

The WIA which sought the extension recommends the AX prefix also accompany a special QSL card with that prefix certain to be greatly sought after.

ANZAC Day annual event

The traditional AM & CW event organised by Mike "Banjo" Patterson VK4MIK and run by the Tablelands Radio Club will again be air.

It honours those modes used in earlier wars. The event idea came from WWII Coastwatcher in Papua New Guinea, Lionel Veale.

The activity basically asks us to consider changing modes on ANZAC Day nets, as an honour and Amateur Radio salute to those who served or are serving.

Among those likely to be involved are the museum ships HMAS Diamantina VK4RAN and HMAS Castlemaine VK3RAN, a "suit case" SOE transceiver WWII radio by Maurie Camps VK2DCD, The Ballarat showgrounds portable station by former navy bandsman Johnno Karr VK3FMPB, the Lake Boga Museum Communications Bunker and Alan Waye AX5PBZ at Tumby Bay RSL.

The Tableland Radio Group is to operate near the WWII AGH Igloo at Rocky Creek War Memorial Park. The Townsville Radio Club also has a station at the Jezzine Barracks.

The event involves ex-military sites and related museums. It has the AM Narly Net on 3.600 MHz at 0630 local and then the same mode appears at 7.115 MHz at 4 pm local.

ALARA

Margaret Blight VK3FMAB – Publicity Officer

Attending the ALARA Meet last October provided the opportunity to meet with operators from all over Australia and New Zealand. Many of these women have an interesting story to tell. As well as their interest in radio, many have an involvement in a variety of other areas. Some are active in community work and some have developed skills in numerous hobby areas. An example is given below.

Volunteer Profile: Diane VK2FDNE

Diane is a long time serving volunteer with Marine Rescue. Operating originally from Lemon Tree Coastguard NSW who initially had one boat, then later, after merging with Marine Rescue Sydney, they now have two boats available for rescue work. Diane is the afterhours operator who is contacted initially. Her task requires assessing the situation and deciding on an appropriate response. This can involve calling out the crew of Marine Rescue and notifying the Water Police. Many calls involve lost boats, or engine failure on small craft. In December, 2014, Diane completed 21 years of service in this area.

In addition, Diane has been a volunteer Fire Fighter since 2003. Her OM Richard VK2FRKO is also a volunteer of 33 years; he is involved with firefighting and marine rescue where he is currently the Commander. As Diane works as a Short Order Cook, she has often found herself pulled off the task of fighting fires to organise the catering for the other volunteers. ALARA members can only roll their eyes in sympathy with this situation. She is also known to regularly volunteer to help raise money for Legacy. Well done Diane! You are a credit to your community.

Photo 1: Diane VK2FDNE.

VK3 News – Heidi VK3FHID

On Australia day 2015, with beautiful weather, a gas camp stove for our cuppa and esky with ice and cold drinks, Bendigo Amateur Radio & Electronics Club Inc. manned a marquee at Lake Weeroona, Bendigo, with posters, radios, and basic information to get the word out to interested people and those curious in what this stuff is all about.

There were radio operators playing with 2 m and 40 m, plus we had Tony VK3KKP listening for satellites going overhead. We had an ALARA scarf dangling over the edge of the table to show that this hobby is not all male orientated, that us girls have fun making contacts and socialise.

One of the crowd stoppers was the Recumbent Tadpole Trike made by Kevin VK3CKC, OM of Monica VK3FMON, as a means of demonstrating one way of using and riding with mobile portable radio equipment.

Amateur radio: to New Zealand

On 27th January, 2015, four ALARA members Jean VK3VIP, Donna VK3FRET, Pat VK3OZ and Margaret VK3FMAB together with two OMs. John VK3DQ and Stephen VK3SIR flew to Sydney to board the Celebrity Solstice for a cruise to New Zealand. Included in the luggage were six portable radios as it was hoped that contact could be made with other amateurs during the cruise.

Sydney was presenting one of its wettest days when we arrived and everyone was happy to eventually be aboard the Solstice. The uncertain weather continued for a few days but while sunbathing was certainly out of the question, there were plenty of on board activities to participate in and, of course, the food and service were top quality. It would be difficult to be unhappy under the circumstances.

The first port of call was Hobart, Tasmania, where we had the opportunity for a day ashore. Two of us, Pat VK3OZ and Margaret VK3FMAB, chose to visit MONA a popular cultural attraction. Early radio contacts were made via IRLP and simplex. Back on the Solstice there were two more days at sea before sighting and sailing through the beautiful Milford, Doubtful and Dusky Sounds.

The first New Zealand port of call was Dunedin which has one of the most attractive and interesting

Photo 2: Mosaics at the Giant's House.

railway stations as well as the chance to visit Baldwin St. "the world's steepest street" being 350 m high at its peak. This seems to have occurred because the city was originally designed in Scotland and no-one appears to have informed the designers that the New Zealand terrain was extremely hilly and the original city plan did not take this into account.

On Tuesday 3rd February, the ship berthed at Akaroa. Prior to the serious earthquake a few years earlier, cruise ships would have sailed into the harbour at Christchurch. Akaroa was a most attractive village which coped very well with its visitors and made them feel most welcome. Its intriguing French street names and history were quite unexpected and fascinating to learn about. A tour of local highlights led to possibly the day's most fascinating location; the Giant's House. Here the artist Josie Martin has transformed her house and surrounding gardens into a wonderland of most attractive mosaic sculptures. Visitors can wander through the extensive terraced gardens and view a continuous array of larger than life fantasy figures which are most impressive.

At our next port of call we learned that 'Windy Wellington' certainly lived up to its name but it was nevertheless an enjoyable experience to tour the Capital City of New Zealand and experience as much of its scenic views as possible in a single day. Never forget its links to the Kingdom of Middle Earth and the patronage of Peter Jackson.

More days at sea followed, the second was due to bad weather forcing the ship to miss berthing at Port Tauranga. However, there was plenty of activity available aboard ship including a rather hastily arranged High Tea complete with scones, jam and cream which was attended by such a large portion of the passengers the service was a tad shaky in parts. But overall everyone had a great time.

A special invitation to visit the ship's Captain on the Bridge was extended to all the radio amateurs and on Thursday 5th February, we assembled, filed to the Bridge and were greeted by Captain Yannis Berdos who kindly permitted photos. So out came the ALARA banner to highlight the occasion.

The radio contacts continued throughout the journey; some into

Photo 3: The ALARA team on the bridge with Captain Berdos.

Australia used the VK3RSP repeater on the Mornington Peninsula and a number of Melbourne amateurs participated. Others were made via New Zealand coastal repeater networks. There were 40 contacts made overall during the voyage. One OM commented that the ship's entire stock of postcards were purchased to be used as QSL cards.

We disembarked in Auckland, our final destination, on Sunday 8th February. As arrangements had previously been made to meet up with some WARO members for lunch, we duly met up at the Esplanade Hotel in Davenport. It was good to catch up with some old friends Marlene ZL1MYL, her OM Laurie ZL1ICU, Lynette ZL1LL her OM Tom ZL1TO plus Rosemary ZL1RO and OM Ralph who are both NZART examiners for the North Shore.

Three more days were spent exploring Auckland before everyone returned to Melbourne, via an Emirates flight which included an evening meal, tired but happy.

Remember the ALARA 40th Anniversary takes place in July 2015. We hope you are all planning to participate.

Photo 4: The attendees at the Auckland luncheon.

Contests

James Fleming VK4TJF
e *vk4tjf@wia.org.au*

This year the **Holy Land DX Contest** is on *17th and 18th of April* starting and finishing at 2100 UTC. Categories are single operator mixed, SSB, CW, digital, QRP (10 watts) or multi-op single transmitter. All bands except for the WARC bands.

Exchange is: worldwide stations give their RST and serial number and Israeli stations give RST and "area" QSO points is (2) for 1.8, 3.5 and 7 MHz and (1) point for 14, 21 and 28 MHz. Multipliers are for each "area" worked once per band. The country is divided geographically, by the Survey Department of Israel, into a grid system resulting in squares of 10 by 10 kilometres. North to South coordinates are identified by numbers, while West to East coordinates are identified by letters. The square is defined through the combination of the relevant coordinates i.e. E14.

An 'Area' (multiplier) is made up from the 10 by 10 km. grid reference square and the region.

For example: **F15TA, E14TA, H08HF**. The 'Area' is the basis for the "Holy Land Award" and the "Holy Land DX Contest". Email logs in Cabrillo format to *4Z4KXX@gmail.com* During the weekend of the Holy Land DX contest I hear many big contest stations. I reckon it must be fairly popular with them. And it could be popular with you as well.

The **Japanese International DX Contest** CW (JIDX) is from 07:00 to 13:00 UTC the following day making it a bit more than 24 hours. The date is *11th and 12th of April*. All the bands are used except for the WARC bands.

Due to propagation Japan should be a bit easier to work on the upper bands 15 and 10 metres. Consequently, these bands are open during the daytime hours to work Japan. Entry classifications are single operator high and low power, multi-op with single transmitter all band high power and maritime mobile. As a single operator you can either do all band or focus in on one band. You can use the DX Summit but no self-spotting.

High power is anything over 100 watts. JAs send their RST plus the prefecture number and others send RST and CQ zone number. For points only contact with JA stations count and only once per band. 1.8 MHz is 4 points, 3.5 and 28 MHz is 2 points, and 7, 14, and 21 MHz are one point per contact. Multipliers are the number of different Japanese prefectures.

The Japanese operators are a pleasure to work. I find them friendly and courteous, working CW they line up for your contacts rather than creating a pile up. This makes working this contest a real good opportunity to hone your contesting skills and dip your feet into contesting especially if this is your first time.

The JARL has many awards that it sponsors including the All Japan Districts Award that you will easily be able to get during the contest. The JARL staff is very friendly and responds well to emails. Email log in Cabrillo format to *cw@jidx.org* The deadline is one month after the contest.

There are several other contests during the month of April. Two other ones that are quite popular are the **SP DX Contest** (Poland) and the **Helvetia Contest** (Switzerland). The SP DX Contest is a bit of a wacky contest in the way that the hours for the contest are out of sync with the time zones of Australia. The Dates are *4th and 5th of April* starting

Contest Calendar for April 2015 - June 2015

Month	Date	Starts at	Spans	Name	Mode
April	**4th**	**1000 UTC**	**2 hours**	**QRP Hours contest (tbc)**	**CW/SSB/RTTY/ PSK31**
	4th - 5th	1500 UTC	24 hours	SP DX contest	CW/SSB
	11th - 12th	0700 UTC	30 hours	JIDX CW contest	CW
	17th - 18th	2100 UTC	24 hours	Holyland DX contest	CW/SSB/Digital/ Mixed
	18th - 19th	2100 UTC	20 hours	YU DX contest	CW
	25th - 26th	1300 UTC	24 hours	Helvetia contest	CW/SSB/Digital
	25th - 26th	1200 UTC	24 hours	SP DX RTTY contest	RTTY
May	**2nd**	**1000 UTC**	**106 mins**	**Harry Angel Memorial 80 m sprint**	**Phone/CW/ Mixed**
	2nd – 3rd	1200 UTC	24 hours	ARI International DX contest	CW/SSB/RTTY
	9th - 10th	1200 UTC	24 hours	Volta WW RTTY contest	RTTY
	9th - 10th	1200 UTC	24 hours	CQ-M International DX contest	CW/SSB
	23rd - 24th	1200 UTC	24 hours	EU PSK DX contest	PSK63
	30th – 31st	0000 UTC	48 hours	CQ WW WPX contest	CW
June	**6th - 7th**	**0600 UTC**	**24 hours**	**VK Shires contest**	**CW/SSB**
	13th - 14th	1200 UTC	24 hours	Portugal Day contest	CW/SSB
	20th – 21st	**0100 UTC**	**24 hours**	**Winter VHF/UHF Field Day (tbc)**	**CW/SSB**
	20th – 21st	0000 UTC	48 hours	All Asian DX contest	CW
	27th - 28th	1200 UTC	24 hours	Ukrainian DX Digi contest	RTTY/PSK63

and finishing at 1500 UTC. Thus you start the contest late night on a Saturday and finish the contest on a Monday night. Not bad for a shift worker but for a regular 9 to 5 person a bit wacky. I usually like 20 metres for contacts with SP land at night time due to the propagation, however, I'm sure if you participated in the contest on other bands you may not have to stay up so late at night. There is usually some pretty stiff competition on the CW portion of the contest as we have some very good CW operators here in Australia. Depending on my work schedule, I definitely will be working some or all of these contests. Even if you have to work, you can still do a couple hours of the contest and have fun. See you on the bands. GL in the contest.

73, James VK4TJF.

Spotlight on **SWLing**

Robin L Harwood VK7RH
e *vk7rh@wia.org.au*

I have not been able to do much monitoring of late because my hearing has been playing up again. It is so frustrating not being able to listen over the shortwave frequencies. It turns out that I have fluid behind the eardrums and nothing seems to relieve it. Medication and nasal decongestant sprays have been unsuccessfully applied and all it has done is made me somewhat irritable. I have another appointment with the ENT specialist on April Fool's Day and I want relief. I have an interesting bookmark with this quotation. *"Don't Quit when the tide is lowest, for it's just about to turn; don't quit over doubts and questions, for there's something you may learn"*- Jill Wolff. Yes I have contemplated giving up the column yet that is a defeatist attitude. As my GP has said, the fluid will eventually dissolve and I may be able to enjoy listening once again.

The A-14 period has commenced on the 28th of March and initial indications are that there are further cutbacks. The major broadcasters have largely left HF, yet small to medium stations that remain are easier to monitor. However I also note that propagational disturbances are also causing disruptions. Signals from equatorial regions seem to escape these anomalies yet signals from temperate and high latitude regions can be severely disrupted, especially on N/S paths. There is auroral flutter present as well.

Listeners have been inquiring if Indonesia is still active on shortwave. The answer is yes and no. Yes the Voice of Indonesia has been heard on 9526 at 1000 in English to Australia yet it is very unreliable. Some days it is there and not on others. The senders were originally rated at 250 kW yet the signal level is well down and certainly would flatten the S-meter if they were at that level. Many provincial stations used to operate within the tropical allocations but they have been completely phased out, although they can be heard rarely, usually during Ramadan.

Ukraine is continuing to dominate the news. Truces have come and gone and the fighting rages on. Amateur radio seems to be thriving however. I did manage to copy a UY3 via the Twente webSDR on 7007 at 0435 and there were Russian prefixes about also. He seemed to ignore them but to be fair there was an atmospheric disturbance at the time. I also noted REA4, the Russian military station on 7017.3 on FSK Morse around the same period. The "D" beacon from Sebastopol in the Crimea was also there but not as strong. Why do these Russian military stations have to operate within the amateur allocations? It has irritated the IARU Monitoring service and amateurs generally.

I notice that Radio Australia has moved back to the 49 metre band in the A-14 period, during our local evening hours: That is from 0900 to 2100 UTC.

I have received confirmation that Deutsche Welle is closing their relay station in Kigali, Rwanda at the end of the A-14 period. That is the 25th of October. The senders could be dismantled shortly thereafter, although the Rwandans do have use of senders on 6155 to relay their domestic and international programming.

Thanks also to VK7LCW for giving me a copy of the Klingenfuss Utility Guide 1992 at the Miena Hamfest last November. It is interesting to look back to see how crowded the bands were and the vastly different situation today.

I hope that I can report back next month with improved hearing and plenty of news. Oddly enough, I can copy CW at the right pitch but am hopeless with voices and music.

VK3news Geelong Amateur Radio Club

Tony Collis VK3JGC

Historical communications restoration work

Whilst the GARC is well known in the radio amateur community, over several decades, for its field day achievements, there is another aspect to the hobby in which several of the club members are involved: in the collection and restoration of radios and communication equipment going back to WWI.

One such member is Cal. VK3ZPK who recently gave a talk to the Club on the work that he is doing on the restoration, with assistance from GARC members, of a Radio Communication Console as used in the Lancaster bombers in WWII. It is believed that there is only one other such console in Australia, located at the War Memorial in Canberra.

The Replica generated such interest that a reporter from the *Geelong Independent* newspaper interviewed Cal and Barry VK3SY and a picture or two and an article followed on Friday 23 February 2015.

Pictured are the R1155 receiver (which has a frequency range of 75 kHz to 18.5 MHz in five switched bands) that Cal. bought on eBay, with the matching T1154B transmitter, the latter being supplied by Peter VK3ZAV where it had been sitting in his house in Ocean Grove since the 1950s. The T1154 / R1155 combination with all of its accessories was used in many of the UK's larger aircraft during WWII, especially the Lancaster, Halifax and Sunderland bombers and was subsequently installed by the RAAF in the Lincolns.

Photo 1: Calvin VK3ZPK standing beside the renovated WWII communications console.

Calvin talked about how the Lancaster bomber itself was a development from the Manchester bomber designed against an Air Ministry Specification 13/36 and because the Rolls Royce Vulture engines did not perform, it was decided by Roy Chadwick, the designer of the Manchester bomber, to redesign the wing and put four tried and trusted Merlin engines on; from there on it was a real success.

The original console equipment specifications were given to Marconi in October 1939 to develop the required system as quickly as possible. This contract was given the Air Ministry nomenclature T1154/R1155. Marconi was appointed the main contractor for design and production of both equipments. The design team was led by one of the chief designers (later Sir) Christopher Cockerell (of Hovercraft fame), then a senior engineer with the Marconi Company. The resulting T1154 transmitter was developed from the existing AD67 and AD77 transmitters at the Marconi aeronautical laboratory at Writtle near Chelmsford in England. The R1155 receiver was developed from the AD68-72 receivers, by sub-contractors E. K. Cole Ltd (EKCO).

Over 80,000 T1154/R1155 equipments were manufactured during WWII, the majority of them being used by RAF and other Commonwealth air forces. Some variants were also produced for the Royal Navy.

Post war many receivers sold onto the surplus market were

modified for amateur radio use by removing the DF circuits and installing power supplies and/or an audio amplifier in their place; so those in an original condition are now relatively scarce.

The communications console pictured will be a centre piece in July at the ANZAC centenary at Osborne House in Geelong along with a number of WW1/WWII radios and telephone systems

In addition to the radio communications equipment, Calvin also built up a replica of the *'fishpond'* radar unit that was also installed in the console in the Lancaster bombers, working in conjunction with the main radar system to monitor the underside of the Lancaster for possible attacks by enemy aircraft.

Regulation examination

Five participants recently attended the GARC for the Regulations part of their Standard/Advanced licence. In the morning they attended a training course run by President Lou VK3ALB and after a BBQ lunch provided by the club, assessors Rex VK3ARG and Ken VK3NW then ran them through their assessments. Our congratulations go to Jarrod Douglas VK3FJDD, Graham Hill VK3FAIC, George Patterson VK3FADQ, Niall O'Shea and Al Hoseman VK3FABQ who all passed successfully.

LI Ion battery development

A presentation was recently given as part of the Club's syllabus on battery research being undertaken at Deakin University by the group dealing with nanotechnology in conjunction with the electron microscope by the Institute for Frontier Materials at the University, by Dr Alexey Glushnekov and Dr Tan Xing.

Subsequently to the presentation a number of Club members were invited to a tour around the University to see first-hand the work that was being carried out on Li Ion battery development.

Syllabus topics can be found on the Club web site at *www.vk3atl.org*

Photo 2: The Deakin University scientists with President Lou VK3ALB and Jenni VK3FJEN.

VK4news BARC

Les Neilson VK4FAEB

Receivers: recent history and how they work

At the February Saturday meeting at Rochedale Scout Hall of BARC on February 14, 2015, some 14 of our members got lucky with some free gear donated by our vibrant Vice President Les Parker who was cleaning out his shed. Many thanks Les for the freebies it is a good thing to recycle gear and give it a new life in others hands.

We were also fortunate to have our member Terry Stewart give an enthusiastic and detailed presentation showing some of his radio receivers for the members. Utilising a white board and drawing schematics, Terry went on to explain how various types of receivers work. This information was well received by the new members, with plenty of questions keeping the presentation lively and informative.

Terry discussed in detail about all of his receivers on display covering their historical information as well how they were used, what he has done to them and how he uses them currently. After Terry's presentation, our members had the opportunity to inspect the receivers first-hand, some with the chassis open, we also got to play with his receivers all the while asking lots more questions about who had

Photo 1: Terry Stewart in front of his display of several radio receivers.

them and what applications they were originally used for and how they were deployed etc.

This first pictured receiver is a R210 receiver and a companion to the C11 Transmitter, they saw service after the WW11 in the British Army and up to the 1970s and deployed as base stations in tanks and Landrovers.

This second receiver is a A27 – Kingsley: it is Australian made and it saw service during WW11 by army field officers who used it listen in to enemy transmissions and with their findings they were able to track the enemy's movements.

Terry completely rebuilt this unit with an emphasis on making it easier to repair by utilizing a peg board to house the components in a more sympathetic way to facilitate any future maintenance. It really works well.

This last receiver is an A217 of modular construction based on the Barlow Wadley principle, and has click over numerals in the display when turning the dials. It has upper, lower CW and AM band options with a frequency range between 1 – 30 MHz.

Terry says this is a nice receiver to operate and being his latest purchase it is firmly standing as his current favourite.

Terry went on to say that once the club has erected some new antennas and aerials which are currently in the planning stages he will gladly arrange a further demonstration of the receivers actually working and show our members with some hands on experience on how to use them successfully one future Saturday afternoon. This then prompted our members to start talking on how and when we can get started on this antenna project ASAP.

Thanks Terry for your passionate presentation on your love of radio receivers.

Photo 2: A27 Kingsley.

VK7news

Justin Giles-Clark VK7TW
e *vk7tw@wia.org.au*
w *groups.yahoo.com/group/vk7regionalnews/*

VK7 Repeater News

VK7RMD - Mt Duncan repeater is a solar powered site and has been suffering from low battery alarms – Dion VK7DB and Lucas VK7FLSB inspected the site using an infrared camera to find that a fuse holder was a hotspot and causing unacceptable voltage loss. This has now been fixed. CCARC are experimenting with UHF repeater linking using a NE Victoria ARC system that utilises a Raspberry Pi in a peer to peer networked system. Watch this space!

The Mt Arthur replacement site for the Mt Barrow VK7RAA repeater is taking shape with the shed now upgraded and weatherproof. New insulation, cladding, flashing, guttering and repaired wooden floor is all in place. NTARC is awaiting a valuation from the Tasmanian Government to determine site lease fees.

Cradle Coast Amateur Radio Club

CCARC's AGM was held on February 28, 2015 and saw the following CCARC members elected: Lucas VK7FLSB – President, Eric VK7EK – Vice-President, David VK7DC – Secretary, Dick VK7LDK – Treasurer and Dion VK7DB – Committee Member. During the recent Crazy Penguin Mountain Bike event, CCARC supplied power

Photo 1: Alan VK7AN and Joe VK7JG at the first SOTA activation of Mt Leventhorpe, Flinders Island. (Photo courtesy of Peter VK7PD).

Photo 2: Rex Moncur VK7MO presenting at the DATV Experimenter's nights. (Photo courtesy of Justin VK7TW).

for the State Emergency Service (SES) repeater from the Mt Duncan repeater site. This enabled power for the SES 70 MHz repeater which provided good coverage for the 40 km circuit around the Dial Range.

Flinders Island Amateur Radio Club

Thanks to Peter VK7PD who supplied a report from the recent FIARC meeting. The meeting was held at Interstate Hotel in Whitemark and the main topic of discussion was the SOTA activation of Mt Leventhorpe and Mt Tanner and the possibility of establishing a repeater on Flinders Island, given the pending demise of VK7RAA that currently provides good coverage on the island. The meeting elected Gavin VK7VTX as Repeater Coordinator and, on a temporary basis, establish a manned repeater at his home QTH to assess performance and possible future needs.

Northern Tasmanian Amateur Radio Club

Over the weekend of the 30 and 31 January the Burnie Endurance Equine Club held an event at Takone in NW VK7. NTARC provided check and safety points for Friday's 40 and 20 km rides then, on Saturday the 80 km ride. NTARC also provided RFID tracking for these rides. Thanks to Norm VK7KTN, Rick VK7RI, Ken VK7KKV, XYL Bett, Andre VK7ZAB, Idris VK7ZIR, Peter VK7KPC, Roger VK7ARN, Rosco VK7RC, Yvonne VK7FYMX, Wayne, Lorraine, Graham and his wife, and Peter who all helped out.

NTARC held its AGM on February 11, 2015 and the following members were elected: Idris VK7ZIR – President, Peter VK7KPC – Vice-President, Yvonne VK7FYMX – Secretary, Norm VK7KTN – Treasurer and Kevin VK7HKN – Committee Member.

Radio and Electronics Association of Southern Tasmania

Congratulations to our last five Foundation licensees who now have their call signs – Matthew VK7FABC, David VK7FABE, Klaas VK7FABB, Shane VK7FABD and Peter VK7FABA.

Sunday February 22 2015 REAST held their AGM with the following members elected: Frank, VK7FINF – President, Ken VK7DY – Vice-President, Barry VK7TBM and Dave VK7DM Committee Members. At the time of writing the positions of Secretary and Treasurer were still being filled. At the AGM there were six life memberships given: Dave VK7DM, Reg VK7KK, Ian VK7QF, Richard VK7RO, Rex VK7MO and the author.

Our DATV nights have seen some great presentations from Rex VK7MO on his 24 and 10 GHz experiments and record setting contacts. One notable presentation was in relation to some very strange interference caused by wind turbines! Presentations included SOTA activations of Mt Styx, DC to DC converters, gearing from B52 mechanical bombsight computers, 100 W 2 m Pager PAs, Raspberry Pi projects, Retro FM radio kits and a RFDS mobile antenna. Our videos included Amateur Logic. TV episodes, Ham College, Ham Radio Now and a tribute to Silent Key and radio pioneer Joy Batchler formerly VK7YL.

Photo 3: Joy Batchler formerly VK7YL.

WICEN Tasmania (South)

On Valentine's Day the Southern Tasmania Endurance Riders held an equine endurance event at the historic midlands property of Fonthill. Peter VK7TPE, Cedric VK7CL, Roger VK7ARN, Rod VK7TRF, Tony VK7VKT, Dale VK7FNED, Jackson VK7FJAX and the author helped out. An early start saw the 80 km riders head out

at 0600, the 40 km riders at 0630 and the 20 km riders at 0800. All radio check and safety points went without a hitch and the last 80 km rider completed the course at 1500.

The same WICEN crew along with Chris VK7FCDW and Clayton VK7ZCR and less the author undertook radio and safety communications for the B&E Run the Bridge Event over the Tasman Bridge on the following day. This event also involved setting up a repeater on Rosny Hill. It went without a hitch.

Photo 4: Jackson VK7FJAX on checkpoint duty at Fonthill Equine Endurance ride. (Photo courtesy of Roger VK7ARN).

GippsTech 2015

The annual GippsTech conference is coming. GippsTech has a reputation as a premier amateur radio technical conference. It focusses primarily on techniques applicable in the VHF, UHF and microwave bands, especially for weak-signal contacts.

GippsTech 2015 will be happening on the weekend of the 11th and 12th of July, at Federation University Australia Gippsland Campus in Churchill, Victoria, about 170 km east of Melbourne.

Call for papers

Anyone wishing to share information with others is invited to submit a title and brief summary of your planned presentation to the Conference Chair Peter VK3PF as soon as possible. Please be sure to indicate your expected length of presentation: it could be a short 10 minute item through to a detailed presentation of up to an hour.

We look forward to seeing you at GippsTech in early July.

Those wishing to present at this year's conference should contact the Chair as soon as possible:

vk3pf@wia.org.au

Peter VK3PF
Conference Chair

Further details will be available from the Eastern Zone Amateur Radio Club website: *http://www.vk3bez.org/*

MEMNET

Have you registered for MEMNET yet?

Go to **www.wia.org.au** click on ***'For Members'***, then click on '***Log into MEMNET***', and register... it's very simple.

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Please email ***memnet@wia.org.au*** with your email address, name and membership number.

If you are changing your email address, please *remember to update* your information in **MEMNET**.

DX Talk

Nick Hacko VK2DX
e *vk2dx@wia.org.au*

If there ever was a DX-underdog, then that has to be Dom Grzyb, 3Z9DX/TI9. Yes I am sure many of you don't need Costa Rican Cocos island as a "new one" – over the years, TI9 has been activated many times. Yet this island still remains number 25 on the most wanted DXCC list.

Dom is not really a seasoned DXpeditioner. His life goal is to visit as many places on the planet as he possibly can, so he travels over 200 days a year. He has actually visited over 200 countries and territories which makes him one of the most travelled people on Earth. But Dom is hardly a pile-up-all-mode machine, so his decision to activate TI9 was quite a surprise to the chaser community and was taken with more than a pinch of scepticism.

The list of obstacles he has had to overcome would easily fill the entire DX Talk column. For starters: how about the simple fact that access to Cocos Island is restricted. The small Pacific Ocean island located off the coast of Costa Rica is designated as a national park and does not permit inhabitants other than Costa Rican park rangers. In addition, it is also a designated UNESCO World Heritage site, and its marine area is also listed as a World Wetland of International Importance. As if this was not enough, it is also known as one of the Seven New Wonders of the World: those fancy titles and designations mean only one thing for an amateur expeditioner: stay away from it! The island covers an area of 550 square km but there are no commercial means of getting there - only by boarding Coastal Guard ship can one set foot on Cocos. We will probably never find out how a Polish amateur managed to not only obtain a permit to stay and operate on TI9 but also to board a Navy ship to take him there. The fact is that in recent years many have tried, and many have failed, but against all odds Dom succeeded.

One would think that after obtaining the licence the TI9 project would have been awash with donations, making the execution a breeze. But for some strange reason, no one wanted to 'touch' the project, despite the clear message from the Costa Rican government that no other amateur DXpedition will be allowed to operate there in the foreseeable future. Just weeks before the departure date, Dom lost his sidekick, an American amateur and CW operator who decided not to go to Cocos. While details of the deal are sketchy and certainly not in the public domain, it had become painfully obvious that the activation of a rare one was on the brink of disaster: there were not even sufficient funds to cover transportation costs and Dom was still looking for a skilful CW operator to join him on TI9.

Over the next few weeks a bunch of supporters struggled to raise a pitiful $3000 - just one third of the money needed to cover transportation costs. The payment deadline was approaching fast. A number of high profile donors were contacted privately with requests for a loan (to be repaid after the expedition) but the money was still not coming in. A bizarre event was unfolding in front of the DX community: while other US-based expeditions were soliciting and raising hundreds of thousands of dollars, our underdog was only able to attract criticism and tonnes of unsolicited advice.

To cut a long story short, despite all obstacles, 3Z9DX/TI9 hit the airwaves on February 16, 2015. Dom was accompanied by three other team members: a Polish friend, local Costa Rican amateur and Dima RA9USU - the CW guy. Dima is a seasoned contest man and DXpeditioner - a typical Russian QSO-machine.

However, it quickly became obvious that something was not quite right with TI9's signal. They were very weak in Europe on most bands, and barely audible in Asia and the Pacific. Even the US amateurs had difficulties hearing them. The reason for the weak signal was the actual operating location: a shallow bay enclosed by steep hills on all sides. Unfortunately the team was not allowed to move to a better position - as the local chief ranger nicknamed 'Fidel' prohibited any relocation. It is also fair to say that another reason for the weak signal was due to the poor choice of high band antennas: a 20 m buddy-pole may be a fantastic field day choice for a casual operator, but surely not a DXpedition antenna. Strangely, they also had two four-square verticals for 40 m and 80 m band. On the third day the 40 m array was washed away by heavy rain. The 80 m 4-sq – a monster pile of aluminium – was never assembled due to the lack of manpower. I can only imagine the strength of the morale of the four expeditioners, to battle on through the tough conditions on Cocos island - the torrential rain, humidity, and lack of sleep - and still remain hard at work.

Nevertheless, during the nine day operation 3Z9DX/TI9 logged 15,867 contacts giving a new one to many deserving chasers. Yes, it was tough to get into their log from

VK2 let alone from VK5 and beyond; and yes, quite a few in VK6 spent the whole week calling fruitlessly. But those who got Cocos will remember that contact and cherish the QSL card for years to come. The small team fought hard and won. So when it comes to DXing: never underestimate the underdog!

Big boys don't cry, but some Dxers do: ZS8MI report.

I've never worked Marion Island. Actually, for all the years spent turning the knob, I've never even heard Marion - neither from Europe nor from Australia. Until January 18, 2014 when I stumbled upon Carson McAfee ZS8C.

And where in the world is Marion? Located 1800 km south east of Port Elizabeth, mainland South Africa, Marion is one of those hard-to-reach sub-Antarctic islands.

As you may have guessed, it is declared a Special Nature Reserve by South African Environmental Management, and activities on the island are therefore restricted to research and conservation. The only human inhabitants of the island are the staff of a meteorological and biological research station run by the South African National Antarctic Programme on Marion Island. And every now and then, one of the researchers would happen to be a ham radio guy - like Carson ZS8C. Carson was part of a 20-man team conducting academic research on the island and its animal inhabitants; his job being to collect Space Weather data for SANSA - the South African National Space Agency.

His modest setup consisted of a typical 100 W HF radio, a very long feed line and a broad gun antenna (by the way, broad gun is a fancy name for a wideband dipole).

So on that date in January last year I got my *'all-time new one'*. Yes ZS8C was painfully weak and yes, my small beam was pointed directly at a power line, overlooking the entire city of Sydney, but the exchange was solid.

What I didn't know at the time was that David VK3EW was chasing him as well - but for a new one on CW.

Here is David's report:

"Over the years I have worked on SSB many ZS8 stations that have been on Marion, but never on CW. I got really excited a few years ago when ZS1HF Pierre announced he was going there for work and would be active for a year. Then he said quite loud and boldly THAT THERE WOULD BE "NO CW" It was like taking out a gun and shooting me, it took a while for the excitement to drain from me - another one lost to the SSB crowd.

The reason I say this is because all I needed at the time was 5 more on CW to have them all worked! You just can't imagine the excitement in me again when I read David ZS8Z and Carson ZS8C were the new ops going there in 2013.

Mr Pierre announced that he was going to be the QSL manager and that the new ops were "NOT GOING TO BE ON CW ONLY SSB MODES". What a disappointment! In late 2013 I spoke with David ZS8Z and in a SSB QSO asked (with fingers crossed) will you be doing CW? He said he might, when he finds the time to learn it.

He said like a lot of countries around the world now CW is not a requirement to obtain a licence. I didn't care if he whistled it or played African jungle drums, banged sticks - all I wanted was a single CW QSO, PLEASE!

Well it's now late in 2013, I'm CQing one afternoon on 17 m SSB beaming Africa and ZS8C Carson calls me... I fall out of the chair, boy is he loud, no one else is calling him so we have an SSB chat for a while, I explain to him what I had said to David about a CW QSO when he learns it. I asked Carson if he knew CW? He responded "Yeah sort of, I'm learning it too. I'm not very good but if you like we can have a QSO". Now here on 17 m... Well, I slumped over the desk, I couldn't believe what he just said. Shaking I said "Okay let's do it". My CW key ready to go I call him at 15 wpm, and wait. A CW signal appeared calling me at 3 wpm... Yes at about 3 wpm, and says "VK3EW VK3EW de ZS8C ZS8C kn! "I can't send CW that slow!" My Morse must sound awful with the spacing is all over the place, while relays in my radio are laughing at me as they slowly click. I reply "ZS8C de VK3EW VK3EW ur 559 559 559 ok?" Carson replied with "VK3EW VK3EW de ZS8C QSL ur 579 579 579 kn". I thank him and we return to SSB.

The tears of joy are running down my face, I can't believe what has happened, one of the five left in the world I needed on CW has now been worked and I only have four to go (I have them all on SSB worked and confirmed).

I still can't get my words out, I can't see the radio VFO as the tears still hurt my eyes. Anyway we did QSY to a couple of bands. Over the past few weeks I have bumped into Carson many times, and he is always happy to say hello and look for VK stations. Wishing you well and remember DX ISI73 David VK3EW"

Epilogue: I got my ZS8C card just the other day after a six month delay, thanks to the South African postal workers who went on strike. Nevertheless, like David, I am over the moon.

VP8DOZ South Georgia, Antarctica. Denis ZL4DB is posted at King Edward Point, near Grytviken and his job is to provide communications for a helicopter operation as part of the South Georgia Habitat Restoration Project. The helicopter team will be rat-poisoning, with Denis setting up a global positioning warning system to track the choppers and a repeater system between the main base and forward operating positions. His time for ham radio will be largely dictated by the weather. If it is bad for flying, then he is off to the shack. Setup: TS-480 and 20/17 m vertical antenna. Make no mistake: you will struggle to hear him so getting into his log

would require plenty of listening and some smart transmitting. Look for VP8DOZ on 18.160 kHz around 2100 UTC. Denis sometimes listen 5 kHz below transmitting frequency and at other times he operates to simplex. According to ZL4PW, his manager, "Denis is very inexperienced in using a computer logging program or pile-up handling so may not be calling CQ initially, he may only S&P for a while until his confidence increases. If you hear him, please be very patient". Your patience will certainly pay-off: South Georgia is listed as number 9 on 'most wanted DXCC list'. It appears that he is much stronger into ZL than VK; I was amazed by how many ZLs actually made it into his log while exchanging very respectable signal reports. For us though, it could be a struggle even at the best of times, so listen carefully before calling.

E30FB Eritrea. Located at the Horn of Africa, Eritrea is a country that we really don't hear much about. It emerged from its long war of independence in 1993 only to plunge once again into military conflict, first with Yemen and then, more devastatingly, with its old adversary, Ethiopia.

Today, a fragile peace prevails and Eritrea faces the gigantic task of rebuilding its infrastructure and of developing its economy after more than 30 years of fighting. In recent years Eritrea has become one of the world's most secretive countries. It doesn't have any privately-owned indigenous media, it is a journalist no-go zone (except for those who agree to report favourably about the government) and sits alongside North Korea in global media freedom rankings - which is really none.

After many months of planning, Zorro JH1AJT and his team managed to secure licence to activate Eritrea as E30FB. The expedition is scheduled for March 7-17; a part of SEISA/Foundation for Global Children project. Unfortunately this information was realised just a few days before the DXpedition appeared on the air. Eritrea is ranked #20 on the most wanted list but there have only been a couple of operations there in the past decade. E30FB has appeared on the high bands with very decent signal, especially via long path. Many VKs managed to work them on 20, 15, 12 and 10 m on both CW and SSB. On Sunday, March 8th they had an amazing 599++ signal on 15m CW. QSL via M0URX.

How's DX?

Earlier this year I invited you to dust of your keyer, put up a new antenna and start tuning the bands. Few VKs took my 'motivational article' seriously but they are now reporting an 'unprecedented amount of activity'. Fantastic - keep up the good work and good luck with cracking those pileups!

Since the start of the year I too have managed to log 167 DXCC. I've started working them 'from scratch' with the intention of working as many DXCC by December 31st. In addition, four all-time new ones were added to the total which now stands at 307. Please excuse my bragging: with so many activations and expeditions, this is actually a very modest score because serious chasers are now well over 200 DXCC worked! According to Club Log, IK0OZD has already got 244 and PY5EG has gotten 237.

2015 and 2016 could actually be one of the best years for DXing. The activation announcements are flooding in - including some to really rare and exotic places. IOTA island activations are at all-time high levels as well. All you need to get 'em all is to pay attention to online sites like www.DX-World.net This website is a priceless resource for anyone interested in DXing and it is updated several times daily. Make it your favourite bookmark!

As always, please feel to share your excitement with rest of us. Good luck and happy hunting.

73 Nick VK2DX

SOTA News

Allen Harvie VK3HRA

Photo 1: The group at the Moorabbin Club rooms.

Congratulations go out to Brian VK3MCD for qualifying as Mountain Goat. Brian is our latest and the sixth Aussie to achieve Mountain Goat status. Brian is a quite regular activator who has achieved GoatHood in just on two years. Brian predominantly activates the summits from Gippsland through to Alpine areas and has included a trip to VK2, one to VK7 and took in three US summits whilst overseas. Well done Brian on achieving GoatHood and we are looking forward to more contacts as you work up the activator list. (See the photo of Brian in action on Legges Tor VK7/NE-001 in the Moorabbin Club News on page 55.)

The Annual VK3 SOTA conference was held at the Club Rooms of the Moorabbin and District Radio Club on February 7th. This year we are celebrating three years of SOTA in Australia.

Thirty people attended the day, with locals and interstate visitors.

First topic of the day was from Wayne VK3WAM. Here we have some interesting statistics demonstrating the interest and growth in SOTA for VK3. In the last years our achievements are shown on table below.

The question of whether there is interest in SOTA was been answered. SOTA has come a long way in short time.

	2012	2013	2014
Activator Points	1249	6717	11473
Registered Activators	19	95	126
Activations	212	1479	2323
Activations per activator	11.16	15.57	18.4
Registered Chasers	40	137	193
Chaser Points	4156	77706	160877
CW Activator Points	169	415	2854
CW Activations	28	82	272
CW Activations per activator	5.6	7.45	14.32

Photo 2: Glenn VK3YY at the start of his presentation.

Other topics presented on the day included:

Ron VK3AFW showing some Chinese rigs suitable for SOTA - Xiegu X1M and X108. These small radios generated a lot of interest.

Andrew VK3JBL on the ups and downs of setting up a CW Skimmer and interfacing with RBNGate to support CW activations. A forum discussion on establishing a VK RBNGate NETWORK in VK was then hosted by Tony VK3CAT and Ron VK3AFW. There will be further investigation required as the response from the group overwhelmingly indicated a desire however there are still issues relating to position and ongoing support need to be addressed.

Allen VK3HRA described the various SOTA Applications currently available concentrating on the features of the SOTA and Park web based spotting tool parksnpeaks.org.

Ron VK3AFW returned to compare the properties of LiPo, LiFePo and Pb SLA batteries as well as various methods of ensuring expensive transceivers were not damaged through overvoltage.

Glenn VK3YY covered several pieces of homebrew SOTA equipment. This included a 40/20/10 m end fed antenna, an Arduino based Antenna Sweeper and touch keyer.

Finally, Tony VK3CAT explained the SOTA 10 and 6 m challenges. This is the challenge for 2015 designed to increase contacts on otherwise underused bands. The challenge runs for 6 months in total, split into two separate three month periods. Each period coincides with the Sporadic E season in either the Northern or Southern Hemispheres.

Photo 3: Peter VK3YE operating from the fly-casting practice pond near the Clubrooms.

The first period runs from 15th May 2015 to 14th August 2015.

Tony described the scoring system for the challenge. In summary:

Chasers

- For every unique summit you chase on 10 m or 6 m you get a multiplier.
- For every unique activator chased you get 1 chaser challenge point.
- Your final score is chaser challenge points x multipliers.

Activators

- For every unique summit you activate on 10 m or 6 m you get a multiplier.
- For every unique chaser worked you get 1 activator challenge point.
- Your final score is activator challenge points x multipliers.

Duration

Several activators expressed interest and will be modifying their antennas to add 6 m and 10 m to see what these two bands can offer.

All presentations were well received with strong questions and topical conversations. Attendees judged it a success.

I would like to thank Ron VK3AFW and Tony VK3CAT for organising, as well as all the presenters for the professional level of their presentations.

A file containing all the PPT presentations from the conference is available now in PDF format from the VK SOTA Yahoo site.

https://au.groups.yahoo.com/neo/groups/SOTA_Australia/files/VK3/

In closing this month, we felt it worth mentioning that VK3YE Peter attended the session and, as is his habit, ended up operating portable radio from the only water available...

VHF/UHF - An Expanding World

David Smith VK3HZ
e *vk3hz@wia.org.au*

Weak Signal

February featured several days of good propagation in the south of the country.

The path across the Bight from VK5 and VK3 to the southern tip of VK6 (Esperance and Albany) normally comes good a number of times over summer. However, reaching further across the land at both ends proves to be a struggle.

On the morning of February 10th, Hepburn was showing a high degree of enhancement across the south of the country, continuing across land from Esperance to Perth and beyond. (In fact, it was showing almost continuous enhancement to Madagascar, but I digress). At 1950Z, Ron VK6VOX at Katanning, halfway between Albany and Perth, reported the Mt Gambier VK5RSE 2 m beacon at 5x9. Soon afterwards, he worked Brian VK5BC on 2 m with a 5x2 report. Max VK6FN at Manjimup was also worked. Brian then reported the Perth VK6RPH 2 m beacon at 5x1. At 2055Z, Ian VK3AXH in Ballarat worked Ron VK6VOX with a 5x9 report for the 2415 km path. At 2155Z, both Phil VK5AKK and Brian VK5BC were hearing the Bunbury VK6RBU 2 m beacon at 5x2. Soon after, Andrew VK6IA in Perth worked Phil VK5AKK (5x5) and David VK5KC (5x2). The

Photo 1: The Peaceful Bay site used by VK6DZ.

opening was extending to the east, and at 2210Z, Jim VK3II near Phillip Island worked Ron VK6VOX on 2 m at 5x1 over a distance of 2558 km. At around 2250Z, Wayne VK6JR on the VK6 west coast near Bunbury worked Phil VK5AKK (5x5) and Ian VK3AXH (5x5) (2640 km), both on 2 m. Phil reported that the Perth VK6RPH 70 cm beacon was 5x1. At 0045Z, after trying for about half an hour, Trevor VK5NC in Mt Gambier finally succeeded in working Andrew VK6IA on 2 m with 5x1 reports.

The morning of February 20th produced similar conditions. At 2215Z, the 2 m VK6RPH beacon was heard by both Phil VK5AKK (5x1) and Brian VK5BC (5x5 – "strongest ever"). Half an hour later, Phil was hearing the 70 cm VK6RPH beacon at 5x1. On 2 m, he then worked Wayne VK6JR (4x1) and Ron VK6VOX (5x2). At 2340Z, he worked Andrew VK6IA on 70 cm with a 5x6 report over a 2145 km path. At about 0100Z, the VK6RBU 2 m beacon appeared out of the noise to 5x1, but no further contacts were made across the path.

The newly installed 23 cm VK7RAE beacon is proving its worth. On the morning of February 8th, Peter VK5PJ in the Barossa Valley reported hearing it, peaking to 5x2 over a path of more than 970 km. It re-appeared on the morning of February 27th, with Phil VK5AKK in Adelaide also hearing it (5x1).

More threats to band allocations

The pressure on valuable spectrum continues around the world. In the UK, the entire 70 cm band is under review by OFCOM, the ACMA equivalent. The RSGB are putting up a good fight so it's hoped that no erosion of the amateur allocations will result.

Unfortunately, the ongoing trend to a mobile society using cloud-based environments means that there will be ever-increasing pressure for more spectrum. We've had a bit of a reprieve here with the re-allocation of the 700 MHz spectrum following the closure of Analogue TV services, but we should not be complacent.

Our best response is to be vocal whenever any threat arises, and to use the valuable spectrum to which we are privileged.

Summer VHF/UHF Field Day

The results for the Summer VHF/UHF Field Day have been released and can be found on the WIA web site (and probably elsewhere in this magazine).

Several years ago, there was a push to change the scoring system from one based on grid squares to a purely distance-based tally. Much heated discussion ensued, and the outcome was that the WIA, as a trial, offered to score the contest under two sets of rules – Division 1 (Grid square-based) and Division 2 (Distance-based). The number of logs submitted for each Division was to be taken as a "vote" for which of the scoring systems was preferred by the participants in the Field Day.

Examination of the latest results shows that the two different scoring methods give quite different results, with a 6 m Es opening during the contest causing a significant variation in the Division 2 results.

Unfortunately, the vast majority of participants are submitting logs for BOTH Divisions. Thus no preference can be inferred. This also massively increases the workload for the volunteers collating and checking the results for each Division.

For future VHF/UHF Field Days, people are strongly encouraged to only submit a log for ONE Division. If there is a clear preference for a Division, then the Field Day should drop back to that one only. If it seems that both Divisions are popular, then perhaps we could alternate scoring. However, the two Divisions running in parallel cannot continue long-term.

Please send any Weak Signal reports to David VK3HZ at *vk3hz@wia.org.au*

Digital DX Modes

Rex Moncur VK7MO

An unsuccessful attempt at extending the 10 GHz terrestrial world record

The proposed new path was some 2796 km or 64 km more than the World Record set on 5 January 2015. The increased distance would be achieved by Derek VK6DZ working from Peaceful Bay in Western Australia, with Rex VK7MO at the same site of Cape Portland in North-East Tasmania. The Peaceful Bay site (Photo 1) has a clear path over water towards Tasmania. Photo 2 shows VK7MO's take-off at Cape Portland with a Wind Farm in the background.

The Hepburn charts suggested that conditions should be significantly better around 9 to 11 February than at the time of the earlier World Record. While nothing was seen over the 2796 km path on 10 GHz, there were a number of good results as below:

9 February 2015

10 GHz, VK6DZ to VK5KK 1986 km, -13 JT4f and 3/1 and 5/3 on SSB

432 MHz, VK6DZ to VK3AXH, 2432 km, -12 dB JT4f

432 MHz, VK6DZ to VK7MO 2796 km, signals seen both ways on JT4f but not complete. VK6DZ was not using a pre-amp and later found loss of around 5 dB prior to his transceiver.

11 February 2015

10 GHz, VK6DZ to VK5KK 1986 km, copied both ways on JT4f but not complete, VK5KK later found that his power output had dropped from 10 watts to 1.5 watts which seems to be the reason for non-completion.

Photo 2: VK7MO's location at Cape Portland with windmills in the background.

10 GHz, VK7MO to VK5DK 740 km, JT4f and 5/9 on SSB

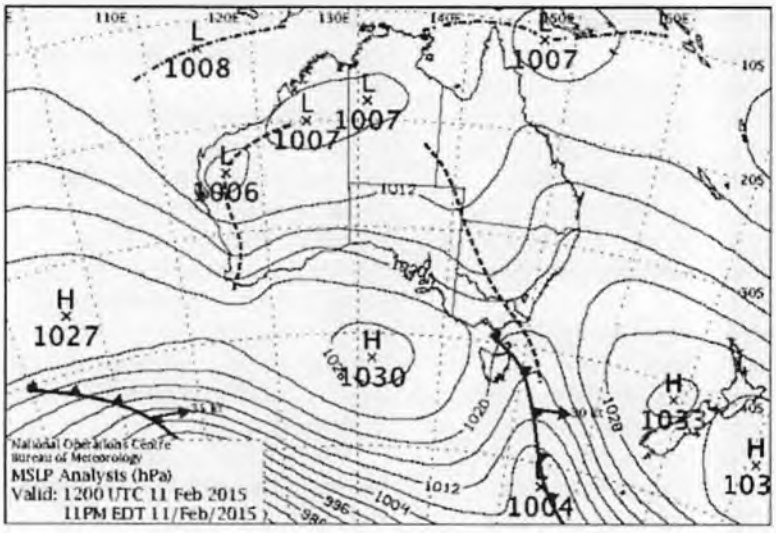
10 GHz, VK7MO to VK5KK 1040 km, JT4f -12 and 5/5 SSB

432 MHz, VK7MO to VK5AKK, 1060 km 5/5 SSB

It is worth noting that VK5KK and VK6DZ have now achieved decodes across the Bight on JT4f on 5 occasions in the last 14 Months - in fact every time they have tried. Derek's view is that if he can see the VK5VF beacon on 432 MHz it is possible to complete a 10 GHz QSO.

While the Hepburn Charts suggested propagation should be much better, it appears that the lack of propagation on 10 GHz from VK6DZ to VK7MO was the result of a weak trough and a cold front on the path that showed up on the Bureau of Meteorology's Mean Sea Level Analysis. It appears that the Hepburn charts, based on global models, did not have sufficient resolution to show up these effects. Accordingly, in planning

Figure 1: Note the cold front crossing VK7MO's location and sloping towards VK5 that is likely to have produced a pre-frontal duct.



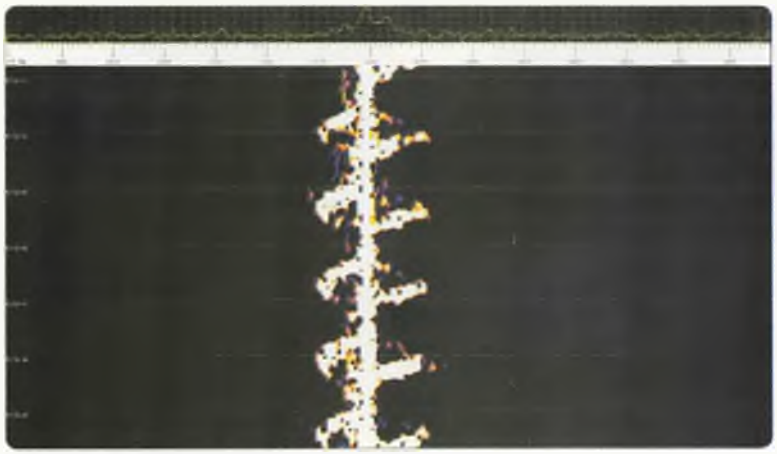


Figure 2: Spreading due to wind-generator some 3.5 km away over a 1040 km 10 GHz path from VK7MO to VK5KK. Note that the pattern repeats around every 1.3 seconds consistent with the speed of the wind-generator.

such attempts, one needs to take account of both the Hepburn charts and the Mean Sea Level Analysis.

It appears, however, that the cold front was the cause of the very strong signals between VK7MO and VK5 on 10 GHz - in the form of a pre-frontal cold front (Figure 1). But this same cold front prevented propagation to VK6DZ.

One useful thing to come from all this testing is that there is very little spreading, if any, on tropo-ducting compared to tropo-scatter and thus narrower bin-width modes such as JT65a might be of advantage. JT65a has around 3 dB more sensitivity than JT4 and also has many more error correction bits and should cope better with the heavy QSB on these tropo-ducting paths. It is certainly worth testing JT65a on future attempts.

It was also noted that there was some odd spreading of VK7MO's signals on both 432 MHz and 10368 MHz (Figure 2). After much testing and frustration to find the problem with VK7MO's rig, this was traced to the effects of wind-generators at the Cape Portland site. On looking back at the World Record contact on 5 January this effect was present on the 2732 km path even though the Wind-generator was 3.5 km away.

More information on this effect is given in a talk that VK7MO gave to the Radio and Electronics Association of Southern Tasmania. The talk can be watched on YouTube on the VK7TW channel. Also available is an earlier talk that VK7MO gave on the 10 GHz Terrestrial World Record and the 24 GHz EME World records.

Please send any Digital DX Modes reports to Rex VK7MO at *rmoncur@bigpond.net.au*

Meteor Scatter

Dr Kevin Johnston VK4UH

Normally the summer period, following the Christmas and New Year holidays, is associated with the best of the year's conditions for tropospheric, Sporadic E (Es) and Meteor Scatter (MS) propagation on 2 m. We have been disappointed by all three this year. In general, the weekend Meteor Scatter activity periods have been well populated by stations across VK1 to 5 and 7. There have even been some new calls appearing including VK2EMA (QF37qs), VK3DUT (QF32vf) VK2IUW (QF56if) and VK1DJA (QF44mr) which is great to see. Most stations however reported MS conditions as being poor to average at best over this period. The number of random meteors has been lower than expected and most pings have been both shorter and weaker than hoped for. The number of hyper-dense "burns" lasting more than 10 seconds has been low. Conditions have also deteriorated rapidly after dawn, which is a problem at this time of year as the sessions are probably starting too late in the day to take full advantage of what meteors there are. Further, there have been no major Meteor Shower events since the Geminid Shower last December. From VK4, I have felt lucky to complete with even 2-3 stations during each session, indeed on some occasions I have failed to complete with any. Stations further south appeared to be having better luck than I but still well below previous year's conditions.

Since 2 m meteor scatter conditions have been disappointing, during the weekend sessions this month, a number of operators have been QSYing to 50 MHz at the completion of the normal 2 m sessions. From 21:00 UTC onwards, activity has been occurring on 50.230 FSK441. Active stations over the month have included VK1DJA, VK2BLS, VK2EMA, VK2IUW, VK3HY, VK3DUT, VK3AMZ, VK3II, VK3AXF, VK4UH, VK4CZ, VK4NE, VK4JMC, VK5RM, VK5PJ, VK7JG and VK7XX.

Although I have completed a small number of MS QSOs on 50 MHz in the past, a number of interesting differences are apparent when a large number of stations are on air at this time. As has been well discussed in previous articles, 50 MHz pings are much stronger and of much longer duration than their 144 MHz equivalents. More importantly, the period of "useful" meteor activity continues for much longer after the pre-dawn peak on 50 MHz as compared to on 144MHz. Useful Meteor Scatter propagation is still present long after 2 m has dried up.

The long 50 MHz pings, however, can be a mixed blessing. WSJT/FSK441 does sometimes fail to decode effectively where the signal returns continue for many seconds or tens of seconds. This is well recognised if for example

decodes are attempted on FSK signals from local stations or arriving via propagation other than meteor scatter. It is apparent however that MSRX, the alternative receive-only software, decodes very well indeed under these conditions. I have strongly recommended having MSRX running in the background behind WSJT for serious MS operation and am now even more convinced of its usefulness for operation on 50 MHz where the received pings are so prolonged and often coming from multiple sources in the same frame.

The next major Meteor showers this year include on the table below.

Thanks to all who have provided positive feedback on this column and on my recent "Getting Started" articles. Most appreciated.

Please send any reports, questions or enquiries about Meteor Scatter in general or the digital modes used to Kevin VK4UH at *vk4uh@wia.org.au*

LYRIDs	Class 1, Peak expected on or around 23 April 2015	ZHR 15-90/hour
Eta AQUARIIDS	Class 1, Peak expected 6 May 2015	ZHR 70/hour

Silent Key

David Edwin Macnaughton VK2BA

David passed away peacefully at the Dorrigo, NSW, Multi-Purpose Health Service on 25th February 2015, aged 71 years.

David was born in Cremorne, Sydney on 2nd June 1943. He was the only child of Lorna and Naughton Macnaughton VK2ZH.

In 1949 at the age of 6, he suffered from Polio and spent four weeks in hospital.

Scouting played a major role in David's life. He started Cubs at 1st Gordon then, after completing Scouts and Venturers, went on to become a leader at 1st Gordon Scouts and also West Pymble. He remained actively involved with the 1st Gordon Scout Group for another 30 years.

David was very successful with his studies. He received his Intermediate Certificate in 1958 on completing his 5th year and went on to the Metropolitan Business College in 1960.

David was always interested in anything technical with his love of radio and electronics stemming from his father. At the age of 17 he built a small television set from scratch using a green oscilloscope tube as the picture tube. For many of his classmates this was the first television they ever experienced.

David started a five year Technician-in-Training Course with the Department of Civil Aviation in 1961. He held numerous positions in the Equipment Acceptance and Prototype sections within DCA in a career

spanning over 30 years. DCA evolved to become Airservices Australia. David was well respected amongst his colleagues and had a reputation for producing a high level of workmanship and a fine eye for detail.

In 1961 David received his first call sign VK2ZVW. In his early amateur years he participated in many radio fox hunts in his VW Beetle. David was very active on air with his home built 2 metre AM transceiver and made many long distance contacts while mobile in the mountainous country surrounding Sydney.

In 1966 David joined the Coastal Mountain Walkers Bushwalking Club to get more experience to take Scouts on walks. He met Jenny through the club and they decided to marry. They went on to have two children, Leonie and Andrew.

In 1977 he passed the Morse code exam and obtained his full license and new call sign VK2BA.

Throughout the 1980s and 90s David was exceedingly active on the 6 and 10 metre bands, working over 80 countries, and still holds the VK2 record for a long path 6 metre contact with 9Q5EE on 6th April 1991, a distance of 26,252.3 kilometres.

In 1996 David and Jenny made the decision to move from Sydney to Megan near Dorrigo. He embraced the lifestyle and community, and fell in love with the rolling hills. Since moving to Megan he became very interested in 40 metre AM operation.

David published numerous articles and designed and built many pieces of radio equipment, mostly using valves, to which he had a particular liking. He will be particularly missed by the 40 metre AM fraternity.

In recent years with advancing illness, David had several hospitalisations, each being life threatening but in his own determined way he kept bouncing back.

In 2012 David decided that it was time to "Walk Across England". Despite his illness, and against the advice of his doctors, he achieved this final goal with Jenny that year.

David is survived by his wife Jenny VK2FJEN, daughter Leonie and her husband Neville Mattick VK2QF and their son Ewan, and son Andrew and his partner Leeny.

Plan Ahead

2015 WIA Conference Canberra | 9-10 May

VK3news MDRC

Kaye Wright VK3FKDW

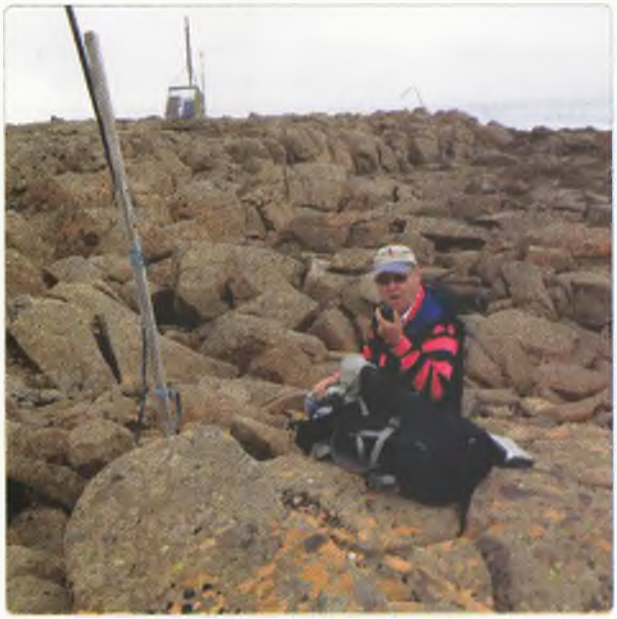


Photo 1: In full flight in a QSO on Legges Tor.

A Mountain Goat Award has finally been achieved by Brian McDermott VK3MCD after his recent trip around Tasmania. Well done Brian, who has worked hard for this award over the last two years.

A SOTA Conference was held at the Club on 7 February 2015 which was very successful from the participants' point of view.

The proceedings, well the overheads anyway, are available at: *https://au.groups.yahoo.com/neo/groups/SOTA_Australia/search/files?*

Photo 2: Shown is a SOTA Flight Deck. It holds a MTR CW three band transceiver, the paddle keyer, logbook and pencil. Operation is easier with everything held in place by rubber bands.

You will need to join the group – it's free – to access the file.

Upcoming Events

MDRC has gained an ANZAC Call VK100ANZAC and an event is being planned from 2nd May to 8th May 2015. More information is available from Ron VK3AFW.

The MDRC HAMFEST is being held on May 9th 2015. Please see flyer for more details.

Compiled from MDRC APC News.

Editor Ron Cook Vk3AFW *vk3afw@optusnet.com.au*

The evolution of a multi-band, fan dipole for portable operation

Julie Gonzales VK3FOWL and Joe Gonzales VK3YSP

During our portable amateur radio adventures to summits, national parks, islands, museums and lighthouses, Julie and I have tried many different antenna combinations with varying degrees of success. But these days we prefer to use a single resonant, multi-band antenna of our own design that really suits our style of portable operations.

It is a single-feed antenna with no-compromise half-wave dipole performance on 80, 40 and 20 metres. It is easy to deploy, it won't come down in a storm and it provides a good broadband match on all bands without the need for an antenna tuner.

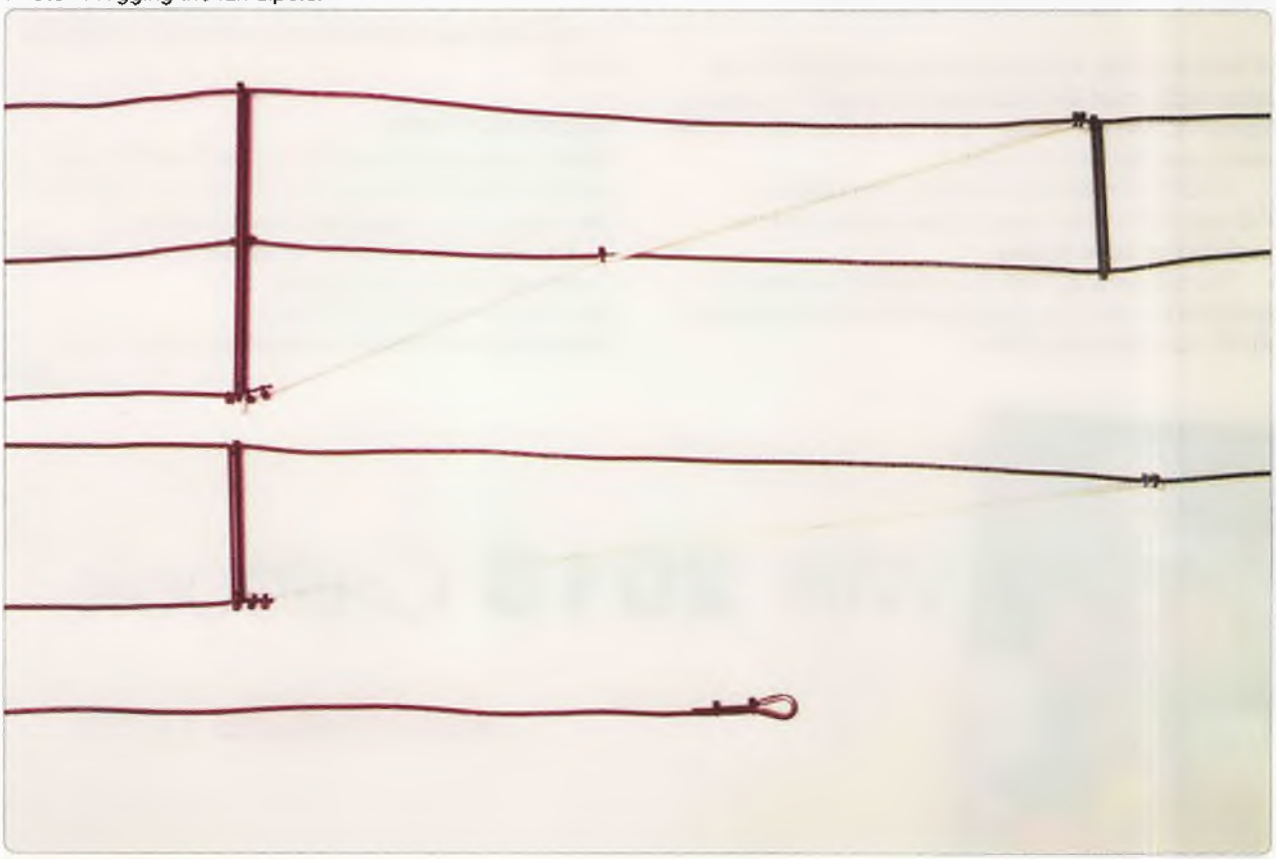
But first a warning: This is not a light-weight portable antenna for serious SOTA work, where every extra gram in your backpack can slow you down. And it is not a simple 'set up in five minutes,' 'take-anywhere with a squid-pole' or 'throw over a bush' type antenna either.

So why describe it as a portable antenna at all? Well, when Julie and I go portable with amateur radio we typically set up for a week, a weekend or at least for a 24-hour contest. We want the best performance we can get and are willing to sacrifice a bit more weight, size, cost and set up time to get what we want. Our operation is always on display to the general public, so our portable antenna needs to be safe, sturdy and look really professional.

So what sort of antenna do we use? We certainly don't have enough room in our little 4WD for a multi-band Yagi, delta beam, hex beam or a full-wave loop. But with the large area available at our camp sites we can certainly do better than a noisy vertical.

So that leaves the good old-

Photo 1: Rigging the fan dipole.



fashioned long-wire antennas. They could be resonant or some random length. They could be linked, trapped or fanned for multi-band operation. They could be deployed in a flat-top, inverted V, inverted L or sloper configuration. They could be centre fed, offset-centre fed or end-fed. And they could be fed with open-wire line, window-line or coaxial cable and a balun.

There were originally so many choices, but we worked through them all as we journeyed around and gained more experience. So now seems like a good time to try to explain some of the decisions we made and how they relate to our portable operation.

The feed line

Open-wire feeder or window-line is very efficient for non-resonant antennas like doublets and G5RVs, and those antennas are better for all-round, multi-band operation, with the help of an antenna tuner of course. So the feed line decision sounds like a no-brainer at this point.

But the attenuation of coaxial cable is quite acceptable at low frequencies especially for well-matched resonant antennas. And resonant antennas are always more efficient than random-length wires. So if we know exactly which frequencies we want to use then we should be able to design a resonant antenna using a coaxial cable feed, without the need for an antenna tuner. All we have to do is to match the antenna impedance to the feed line on each band. Simple.

Strangely mass is not much of a factor as coaxial cable, open-wire feeder and window-line are about the same mass per metre.

But there were other more important issues, which we learned through experience in portable operation. Coax is much less bulky when coiled up than either open-wire or window-line. It isn't affected by rain or wind. It doesn't snag on bushes. It is very flexible and doesn't break easily. It can be safely fed into a metal vehicle under the door seals. Finally coax does not tangle up and twist like open-wire or window-line does in a bag or in the bush.

Horror tangles are, by the way, the bane of portable operation. We have wasted literally hours and hours of our setup time trying to untangle light antenna wires. We avoid it now by using thick wire which won't tangle in the first place and careful hand-over-hand, not elbow, roll-up and roll-out techniques.

But using coax means having a heavy balun at the feed point, which is bad news for centre and offset fed antennas. There were still some problems to be solved, but at this point it seemed like coax had won the portable feed line stakes. We could always use open-wire feeder or window-line at home.

The antenna configuration

We evaluated different antenna configurations using an antenna modelling tool. A flat-top dipole, an inverted V dipole and an end-fed sloper, were all compared at the same maximum height. You can do this easily yourself with any antenna modelling program.

Now, personally, we don't believe the absolute performance results of antenna modelling software. We always have to fiddle with the ground characteristics to get the same answer as the real thing. However, these programs can be used very effectively for performance comparisons and sensitivity analysis – which is almost impossible to do accurately in the field due to too many variables and changing conditions.

We found from our antenna modelling that the flat-top configuration had consistently about 3 dB more gain than all the others and putting the entire antenna up above the vegetation was an intuitive step. The down side was that flat-top antennas needed two supports instead of one. But that was a small price to pay for effectively doubling our transmit power and receive sensitivity. It may make all the difference in contests and for DX work. So it looked like the flat-top configuration was the go.

The antenna support

You may think the antenna support is just a passive part of our portable setup, but it is actually one of the most important. When we arrive on site the first thing we do is figure out the best location for our antenna. Where are the big trees or where can we put our masts and guys instead?

The antenna supports need to be at least six metres high and must be about 40 metres apart with a clearing in between for our vehicle-based radio station (which is solar powered by the way). Trees unfortunately don't always cooperate with these amateur radio requirements and so masts must be brought along as a backup solution.

Originally we used light hook-up wire antennas which could be suspended from nine metre squid poles. However as our antenna designs evolved the squid poles could no longer cope with the increasing load. We still take squid poles along with us, but these days we use them only occasionally to route antenna wires around high branches and other obstacles.

Now a rugged portable antenna will be made of heavy-duty wire, a heavy balun and a coax cable feed line. It will have the equivalent horizontal force of two kg in weight on the supports. So we will be using pretty big tree branches, where available, or our home brew, 8.5 metre, guyed, telescopic, aluminium masts.

To string a heavy wire antenna between two big gum trees is actually quite easy. We use another little invention of ours that we call RoboStick®. It is a safe and perfectly legal antenna launcher modelled after the Australian aboriginal throwing stick, or Woomera.

With the help of a strong arm,

it accurately fires a round lead sinker as high as 15-20 metres up and over a tree branch. The sinker is attached to some fishing braid, which freely spools out from a hand-line fishing reel.

RoboStick© is really just a one metre length of 20 mm PVC conduit fitted with a slotted socket on one end and a hand grip on the other. It is very important for safety that the, virtually- unbreakable, fishing braid is never tied directly to the sinker. Instead, a toothpick is pushed into the hole and broken off to provide a strain relief valve in case the braid gets caught around your finger, or the sinker gets caught up a tree.

The fishing braid is just a leader used to pull through some heavy-duty, soft, nylon cord. The latter is tied off against the tree using cam-buckle straps, which don't harm the tree in any way. Julie says: 'Trees are people too.'

The antenna type

So by now we have pretty much decided on resonant wire antennas. The only multi-band resonant dipole antennas I know of are linked dipoles, offset-centre fed (OCF) dipoles, trapped dipoles and fan dipoles.

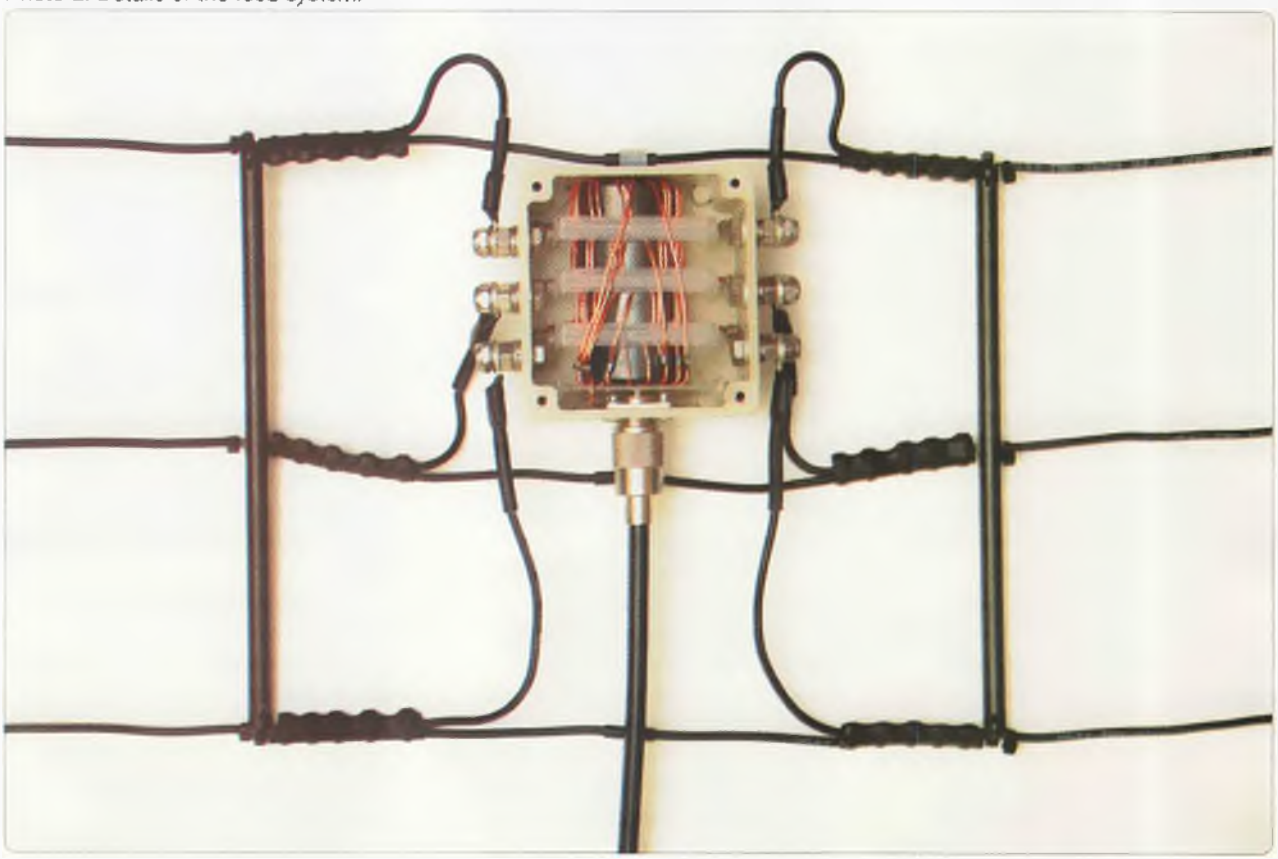
Linked dipoles, which have removable shorting links for each band, mean that the antenna has to be brought down just to change bands. That wouldn't be fun at all in a storm and we seem to encounter storms all the time.

OCF dipoles are fed at around 33% from one end of the wire. They can work on all three bands, but I could never seem to get the centre frequencies in just the right spot. For some reason, they don't exactly tune up on the second and fourth harmonics as expected. They have fairly narrow bandwidth and their feed impedance is quite different on each band, so they are a bit of a compromise, really.

Trapped dipoles have wire coils with capacitors or coaxial traps located at strategic points along the dipole. At their resonant frequency the traps go high impedance and effectively disconnect the rest of the antenna. They can be made spot on frequency, but they have extremely narrow bandwidths due to the high Q of the traps. Again, their feed impedance varies considerably and they are actually a non-optimal or 'loaded' antenna.

Fan dipoles are really just separate dipoles all connected in parallel to a single feed point. The dipoles can be individually tuned to the required frequencies. They have the same gain and bandwidth on each band as a standard half-wave dipole by itself. They work OK provided that there is not much interaction between each dipole.

Photo 2: Details of the feed system.



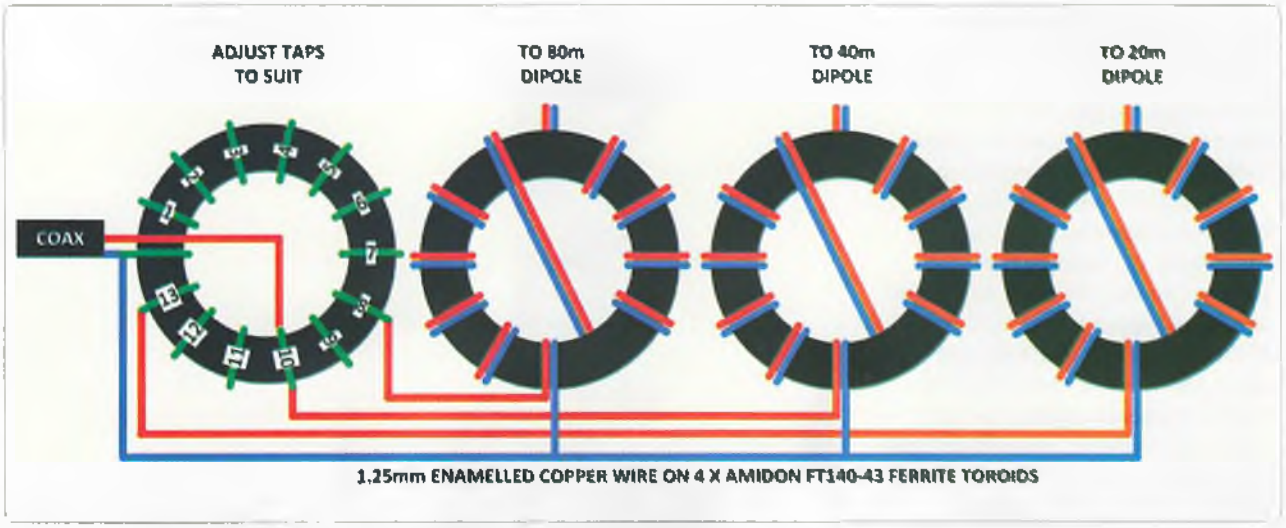


Figure 1: Schematic diagram of the balun.

To minimize the dipole interaction you have to provide at least some separation between them. Usually each leg is just strung, rather unattractively, in an arc from the feed point back to the longer dipole at the top using some nylon cord. Hence the name 'fan' dipole.

But of course, like all the others, the feed impedance of each dipole in a fan dipole is different on each band. A single balun at the feed point could not hope to match them all the to the 50 Ω coaxial cable. We realised that we would have to use an antenna tuner and there would be standing waves on the feed line, so the coax would be inefficient too.

The feed system

But then it occurred to us that you could actually have three different baluns instead of just one, each matching a dipole to the feed point impedance. We Googled it extensively, hoping to find the design of such a multi-tap balun for fan dipoles. But unfortunately we couldn't find anything even resembling this approach. All the fan dipoles we found were just joined together in parallel. It looked like we would have to design something ourselves.

We began by modelling the fan dipole in our favourite antenna modelling tool. We modelled the 80, 40 and 20 metre dipoles separately and then together at 8.5 metres high, separated by only 10 cm vertically. The design frequencies were 3600, 7100 and 14150 kHz.

To our surprise, we found that there was little interaction between the dipoles on these frequencies. The feed impedances, with the virtual matching transformers in place, were 26, 46 and 56 Ω, the gains were 7.9, 5.6 and 5.9 dBi and the bandwidths were 69, 120 and 400 kHz respectively. It appeared that the combined dipoles would work much the same as the individual dipoles.

The build

We then set about building the three dipoles exactly as we modelled them out of heavy duty five mm², multi-strand, insulated, copper wire as used in household electrical wiring. The full dipole lengths were 38.52, 19.50 and 9.52 metres respectively.

The dipoles were separated 10 cm with short lengths of fibreglass tent-pole material and rigged parallel, with nylon cord and cable ties. Each dipole was connected to a set of stainless steel, feed-through bolts into a weather-proof enclosure at the feed point.

Inside the enclosure, we put three 1:1 baluns and an autotransformer to match the different dipole impedances. The balanced side of each balun connects directly to one of the dipoles. The unbalanced side connects to ground and to one of three different impedance taps on the autotransformer. The coax cable connects to ground and to a 50 Ω tap on the autotransformer.

The feed-point enclosure is suspended from the top dipole wire. Strain relief for each dipole is provided by a short piece of unconnected insulated wire, five cable ties and some heat shrink.

The 1:1 parallel transmission-line current baluns and the autotransformer were all made by winding 1.25 mm enamelled copper wire on Amidon FT140-43 toroidal, ferrite cores, which can each handle 100 W or more. An insulating sheet is also placed between the cores to discourage any arcing. The autotransformer has 13 turns with taps at eight (80 m), 10 (40 m/feed) and 13 (20 m).

The results

When we had finished building our new antenna, Julie and I couldn't wait to try it out at our 'antenna test range' (a nearby vacant lot) and after some tweaking of the taps we obtained the following results on our antenna analyser: For 80, 40 and

20 m we had centre frequencies of 3590, 7110 and 14110 kHz, a SWR of 1.1:1, 1.0:1 and 1.1:1 and bandwidths of 100, 190 and 480 kHz respectively. All results agreed well with the antenna modelling.

Since then, we have used this antenna successfully on many occasions. We recently back-packed our rigs, antenna and masts across to French Island for the IOTA contest and following that we camped out at Queenscliff for the International Lighthouse and Lightship Weekend. It works without an antenna tuner or switch. It works perfectly with our HF triplexer, enabling us to work all three bands simultaneously. The combination just couldn't be more convenient for our portable operations.

One final word about safety. We never set up our portable station without connecting an in-line lightning arrestor and a 1.5 metre ground rod to the coax feed. And we always put caution tape and 'NO ENTRY' signs around our guy wires. It is always better to be safe than sorry.

Photo 3: Portable operation with the fan dipole.

Photo 4: RoboStick and safety equipment.

WIA Functional Committees

The WIA is a membership organisation with a very wide range of complex functions and member services. Core functions and services are administrative in nature (general administrative functions, membership services, examination and callsign management, financial etc...) and are performed by salaried staff.

Volunteers perform a diverse range of highly specialist functions (ACMA liaison, Frequency Co-ordination, Standards liaison, Interference issues, technical support and training and assessment etc.). These volunteers provide the majority of member services, however they have been loosely organised and often overstretched.

The new committee system attempts to structure the WIA's non-core activities into 10 broad functional areas, each comprising a team of volunteers under the direction of the WIA Board. This structure is intended to spread the workload on our volunteers, improve communications between members and the WIA Board, improve services to members, and encourage more people to become involved in the WIA.

WIA Committee Charters

Spectrum Committee

(Regulatory, ACMA, ITU, IARU, Repeaters & Beacons, Standards, Interference & EME, Monitoring Service)

Geoff VK3AFA, Phil VK2ASD (Director), *Peter VK3MV, Roger VK2ZRH (Director),* **Brian VK3MI, Dale VK1DSH, Peter VK3APO, Richard VK2AAH, Gilbert VK1GH, Rob VK1KRM, Noel VK3NH, Doug VK3UM**

- Perform all ITU and IARU liaison activities.
- Liaise with, and act as the 1st point of contact for, the ACMA.
- Advise the Board, and enact Board policy in relation to all radio communications regulatory issues and the LCD.
- Represent the WIA to State and Local Government
- Represent the WIA to Standards Australia
- Provide specialist technical advice and coordinate repeater and beacon licence applications and frequency allocation.
- Develop responses to significant and prolonged harmful interference issues affecting amateur radio operations.
- Provide an information resource for EMC/EMR issues.
- Administer the IARU Monitoring Service in Australia
- Provide a technical resource to other committees and the WIA Office.

Technical Advisory sub-Committee (Tech support, Band plans etc.)

John VK3KM, Doug VK3UM, Rex VK7MO, Paul VK5BX, Walter VK6KZ, Barry VK2AAB, Bill VK4XZ, Peter VK3PF, Paul VK2TXT, Peter VK1NPW, John VK1ET, Peter VK3BFG, Eddie VK6ZSE, Peter VK3APO

Administrative Committee

John VK3PZ (Treasurer), Greg VK2SM (Assistant Treasurer), David VK3RU (Secretary), Mal VK3FDSL (Office Manager), Phil VK2ASD (President), Chris VK5CP (Vice President)

- Responsible for the efficient and correct operation of the WIA office.
- Responsible for staffing and workplace safety.
- Provide a specialist administrative resource to the WIA office as required.
- Manage contractual agreements.
- Manage business relationships.
- Ensure compliance with the ACMA Business Rules
- Prepare yearly budgets
- Prepare quarterly financial reports for the Board
- Prepare independently reviewed YE financial reports and balance sheets for circulation to the membership prior to each Annual General Meeting.
- Manage insurances and to be responsible for currency of insurance policies.
- Maintain a complaints register.
- Ensure complaints are handled in accordance with WIA policy and any contractual agreements.

Communications, Marketing, Publications and AGM Committee

Robert VK3DN (Director), Phil VK2ASD (Director), Jim VK3PC, Graham VK4BB (Broadcast), **Roger VK2ZRH (Director) Publications sub-**Committee (AR Magazine, Callbook etc): **Peter VK3PF (Editor AR), Peter VK3PH (Editor Callbook), John VK3PZ (Treasurer), Ernie VK3FM, Peter VK3AZL, Evan VK3ANI, Ewan VK3OW, Bill VK3BR**

- Communication with members and the public:
- Communicate with the membership.
- Publicise WIA activities and initiatives.
- Develop strategies and resources for the promotion of Amateur radio to the public.
- Develop strategies and resources for the promotion of WIA membership to the Amateur community.
- Supervise and/or perform promotional activities.
- Co-ordinate the yearly AGM activities

Education Committee

Fred VK3DAC (Director), Owen VK2AEJ, Ron VK2DQ, Mal VK3FDSL (Office Manager)

- In association with the WIA's RTO and affiliated clubs offering training services, develop and administer the WIA's training and assessment systems.
- In association with the Spectrum Strategy Committee, develop and maintain the various licence syllabi and associated question banks.
- In association with the Community Support Committee and the RTO, develop and maintain the Emergency Communications Operator scheme.
- Ensure the confidentiality and security of all personal information, question banks and examination papers.

Radio Activities Committee

Chris VK5CP (Director), Geoff VK3TL

Contests sub-Committee

Alan VK4SN, Denis VK4AE/3ZUX, John VK3KM, Tony VK3TZ, Kevin VK4UH, Colin VK5DK, James Fleming VK4TJF

Awards sub-Committee

Bob VK3SX, Marc VK3OHM, Laurie VK7ZE, Alan VK2CA, Alek VK6APK, David VK3EW, Paul VK5PAS, ARDF sub-Committee: Jack VK3WWW, ARISS sub-Committee: Tony VK5ZA

- All activities associated with actual radio operation, such as: contests, awards, distance records, QSL services, ARISS, AMSAT, ARDF etc.

QSL Card sub-Committee

Geoff VK3TL, Alex VK2ZM, John VK1CJ, Max VK3WT, June VK4SJ, Stephan VK5RZ, Alek VK6APK, John VK7RT, Craig VK8AS

Historical and Archive Committee

Peter VK3RV, WIA Historian, (Leader), Drew VK3XU, Linda VK7QP, Martin VK7GN, Ian VK3IFM, Will VK6UU, David VK3ADW, Jennifer VK3WQ/ VK5ANW, Roger VK2ZRH (Director)

- Develop, maintain and preserve the WIA's historical and archive collection
- Encourage access to the collection by WIA members and those seeking historical material for publication.

IT Services

Robert VK3DN (Director), Tim VK3KTB

- Provide an IT resource to other committees and the WIA Board.
- Be responsible for the off-site data back-up of all IT systems information.
- To update and maintain the WIA website as required.
- Advise the Administrative / Financial committee in relation to the MEMNET Cloud Service contract.

Community Service Committee

Fred VK3DAC (Director), Greg VK2SM (Assistant Treasurer), Ewan VK4ERM (Director), Paul VK5PH

- Develop, promote and co-ordinate all WIA community support activities

New Initiatives

Phil VK2ASD (Director), Robert VK3DN (Director), Roger VK2ZRH (Director), David VK3RU (Company Secretary)

- Think-tank ideas and initiatives to advance amateur radio and WIA membership.
- On approval by the Board, run proof of concept trials.

Affiliated Clubs Committee

Ted VK2ARA, Mal VK3FDSL (Office Manager), John VK3PZ (Treasurer), Phil VK2ASD (Director)

- Manage all arrangements between the WIA and WIA Affiliated Clubs
- In cooperation with the Administrative / Financial committee, manage the Club Insurance Scheme
- Encourage stronger relationships and communications flow between the WIA and WIA Affiliated Clubs
- Encourage increasing WIA membership ratios in Affiliated Clubs
- Manage the Club Grants Scheme
- Identify and bring regional Affiliated Club issues to the attention of the WIA Board.

1945 ALBURY HAMFEST!

From VK3VG, Sgt H.A. Vinning, 133 Wing, No2 Coy. IASTB Bonegilla. He reports:

"I am on the staff at the school the Army is running here and occasionally we are lucky enough to have the pleasure of teaching a ham. About five months ago, I noticed that one of the students was more interested in how the rig perked instead of the often met aptitude of 'punch the key and hope for the best' Suddenly this particular student grabbed the key and rattled out a snappy little 'CQ DX'. I pricked up my ears and he signed VK2CAX ... and that is how it all started, and from then on we swapped lies and bashed ears to no small order. Next course a new officer took over command of the school to wit Lt Arthur Stowar (nee VK2CAX).

Since then ACX and myself have held, almost daily, a two-ham hamfest. We were constanly on the lookout for other hams, as this place, being a signal depot, is the place to find hams. One by one we managed to QSO them and 2ACX is pleased to relate they nearly all QSL, and he is gradually filling the wall with QSL cards of those who have been contacted. Finally 2ACX suggested that seeing we had quite a few hams in the area, it was time to hold a hamfest where we could all get together for some unrestricted ragchewing. The arrangements were completed and our dinner was held at the Albury Hotel at 18.00 hours on April 19th. Those present were:

Signalman Reg Flood VK2BN, Lieutenant Arthur Stowar VK2CAX, Albury Buisman Noel Arnold VK2OJ, Sergent Fred Bull VK2AJM, S/Sergent Alan Jocelyne VK2AJO, Sergent Fred Smith VK3FR, Lance Corporal Jim Watson VK3NQ, Sergent Howard Vinning VK3VG, Lieutenant Ron Williams VK3ZD Sergent H. Loiser VK5LO, Captain Bob Manuel VK5RT and Jim Todd (no call).

Naturally enough the only topic of conversation was Ham Radio and we concluded the ragchew at about 22.00. 2OJ said it was the most hams he had seen altogether for many years and I suppose it was one of the biggest gatherings of the clan since that fateful day of the red telegram. A good time was most certainly had by all."

[AR, May 1945, p10 (extract) Slough Hats and Forage Caps by Jim VK2YC]

Hamads

FOR SALE – VIC

ICOM IC-T70A VHF/UHF Dual Band Handheld FM Transceiver. With Charger and Manual. As new condition. $220. Alex Stirkul VK3AMX, QTHR. 03 9850 7493. Email: *alexstirkul@yahoo.com.au*

Yaesu FL2100B with two unused 572B / T160L valves. Offers accepted. Buyer to collect, or by arrangement.

Rotator cable 7 core, unused – 40 metres. $70 plus postage.
David VK3FGE 03 5176 4664

FOR SALE – VIC

Heavy duty antenna rotator. Emotator 1102MXX. $500. Buyer to pick up.
Barry VK3JB 03 9878 8275

FOR SALE – ACT

Large quantity new and used transmitting and receiving valves, including some rare types. Too many to list but happy to email a spreadsheet with listing. I don't want 'the farm' for any but can't bring myself to throw them out. Will pack carefully: you pay postage and I will refund $ for tubes if any are no good. Please contact Frank Grimshaw 02 62557849 or email: *fgrimshaw@bigpond.com* for a copy of the listing. Thanks for looking. 73 Frank VK1VK.

Contributions to *Amateur Radio*

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at *http://www.wia.org.au/members/armag/contributing/*

Email the Editor: *editor@wia.org.au*

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- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
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ADVERTISERS INDEX

Editorial

Continued from page 2

QRP portable station has been attempting to conclude a contact with a more distant station. Under such circumstances, the newcomer to the frequency causes much disruption, often being pounced upon by listeners waiting to contact the QRP station with the advice *"the frequency is in use, please QSY"*.

I therefore request that operators please be considerate: listen carefully for a couple of minutes at least, not just several seconds before transmitting; please do announce yourself and ask *"Is the frequency in use?"* – listeners who hear you well will advise if there is traffic on the frequency - and do not just come up and make a protracted CQ call, obliterating the attempts of the weaker stations to complete their contact. Be considerate.

Antenna safety

A photo in this month's SOTA column reminds me of some factors that we should always consider when erecting antennas, be it at home or when portable. It also applies to the article describing the "Wadetenna" published last month and the article on *"Wire antennas for seaside DXing"* in this issue: be very aware of your environment at all times. Watch for power lines. Keep an alert eye on the weather – being out portable or even when erecting a new antenna at home, be aware of the possible danger of the antenna making contact with a power line, or of approaching weather which may bring thunderstorms. The consequences can be lethal! Keep safe! And always consider others around you when setting up in a portable location.

Until next month,

Cheers,

Peter VK3PF

2015 WIA Conference
Programme & Timetable

Friday 8th May

6:00 pm onwards	Informal dinner and drinks at King O'Malleys Hotel.

Saturday 9th May

8:00 am to 9:00 am	Registration in the Poseidon Room Hellenic Club.
9:00 am to 12:45 pm	Annual General Meeting and Open Forum at the Hellenic Club.
9:30 am to 4:30 pm	Partners Tour.
1:00 pm to 2:00 pm	Lunch.
2:00 pm to 5:30 pm	Celebration of 10 years of the Foundation licence with guest speakers.
6:00 pm to 7:00 pm	Pre dinner drinks in the Hellenic Club bar.
7:00 pm to 11:00 pm	Annual Dinner in the Poseidon Room at the Hellenic Club.

Sunday 10th May

All Day	Tour Canberra - visit the many local Canberra attractions and ANZAC exhibits.
6:00 pm	Dinner with members of the CRARC at a city Hotel venue.

2015 WIA Annual Conference

8, 9 & 10 May 2015, Canberra

The WIA is pleased to announce details for the **2015 Annual Conference**.

The AGM, Open Forum and Annual Dinner will be held in the *Poseidon Room* at the *Canberra City Hellenic Club* 13 Moore Street Canberra on Saturday 9th May.

The Hellenic Club is located in the Canberra CBD with a wide selection of hotel accommodation and parking available nearby. Please visit the WIA website for full details, prices and registration.

For those arriving in Canberra on Friday evening, there will be an informal dinner and get together held in the *Arcade Room* at *King O'Malleys Hotel* 131 City Walk Canberra.

Sunday will provide an opportunity for all attending the weekend to visit the many local Canberra attractions and to celebrate the ANZAC centenary.

More information and online registration can be found under the '*News And Events*' menu on the WIA home page: **http://www.wia.org.au/joinwia/wia/2015agm/**

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