

# WANSARC NEWS



Wansarc is an affiliated club of the Wireless Institute of Australia

Volume 40 Issue 10—November 2009



Western and Northern Suburbs Amateur Radio Club VK3AWS  
Incorporated in Victoria A7611S

*WHEN A LEGACY and MEMORY LIVES ON.....*



When Karl VK3ZKH mentioned that he was looking for an IC251 to complete his Icom range of gear for his shack, Mark VK3PI knew where to find one. Founding WANSARC member, Ted VK3ZZO, passed away in the 80's and Mark was lucky enough to purchase Ted's old rig. For over 25 years since Ted's passing it has worked faithfully. The decision to pass on this rig was a difficult one, however knowing that the rig has gone to another club member continues the legacy, and memory, of Ted VK3ZZO. **And that, is a wonderful thing.**

**The VK3ZKH shack is now complete—and it looks great!**

#### *Inside this issue:*

Next meeting activities	2
Club Dinner—December 2009	2
A portable mast—Martin VK3FMJP	3
The Melbourne Underground Rail Loop—Brian VK3RA	4
VHF/UHF Microwave DXpedition—Mike VK3KH	6
Bits and PI-eces—Mark VK3PI	6
Humour page—Matt, Graeme VK3PGK, Bob VK3EL	7

#### *Calendar for OCTOBER 2009*

- **Friday November 6 2009**—It's a general meeting night with a twist. Bring your gold coins to snap up some more pre-loved equipment. Copper wire, AMU etc etc.
- **Tuesday November 3,10,17,24** - CLUB VHF NET Come on and join in and catch up with the latest member projects and news. 146.450MHz is the club net frequency on FM and we look forward to hearing from members and visitors.

## NEXT MEETING ACTIVITIES

**FRIDAY NOVEMBER 6, 2009** — The November meeting will be the final meeting at our clubrooms for 2009, as the December meeting will consist of a sit down meal at the NMIT Restaurant. This will be the final opportunity for you to contribute to the club's funds and take home some excellent equipment at bargain basement prices. Graeme VK3NE has sourced the following items: MULLARD MODEL #7 ATU, GELOSO VFO and DIAL, 80 METRE AM/CW KIT, CONVERTER KIT VHF TO Broadcast band and COPPER WIRE, 7/0.91 annealed bare copper, 1 lot approximately 200 metres and another 75 metres. Bound to be some other bits kicking around so be at the club to make your bid for whatever is available on the night. Look forward to seeing the many smiling faces of members at the next meeting.

## CLUB DINNER—DECEMBER 2009 MEETING

A reminder to club members that the final club meeting of the year will be the Annual Dinner, to be held on **FRIDAY DECEMBER 4, 2009**. The venue will again be the NMIT Restaurant in St. Georges Road, Preston.

Gordon, VK3YOD, has advised that the cost of the dinner will this year be \$30. A menu is not yet available however if past performance is anything to go by the meal will again be scrumptious.

Time to put your hand up and advise of your intentions re the dinner, so please contact Gordon VK3YOD to register your seat/s, as soon as possible.

Gordon can be contacted on 0425 738 181, via email at [ghall@nmit.vic.edu.au](mailto:ghall@nmit.vic.edu.au) or [vk3yod@optusnet.com.au](mailto:vk3yod@optusnet.com.au) or at the clubrooms in person.

## WORLD TROPOSPHERIC DUCTING NETWORK from Leigh VK2KRR

Leigh, VK2KRR, has re-established the 'World Tropospheric Ducting Network' email group.

If you would like to join and receive & send emails to the group you can find it at [http://au.groups.yahoo.com/group/World\\_Tropospheric\\_Ducting\\_Network/](http://au.groups.yahoo.com/group/World_Tropospheric_Ducting_Network/)

Leigh describes the network as "A place where people interested in investigation of tropospheric radio ducting can post there experiences, experiments and discoveries and theories regarding the propagation of radio waves via tropospheric propagation. The group is intended to gather information from all around the world as at times suitable propagation in many areas can become quite sparse and its interesting to read of others good fortune in different locations."

## JOTA 2009— a summary from John VK3FMPB and Ian VK3JQ

The Scouts Victoria Jamboree of the Air, better known as JOTA was held on the weekend of October 17/18 at Tree Tops in Riddells Creek. Tree Tops is about 16 km north of Sunbury approximately 50 km northwest of Melbourne city.

The scout camp is in the Macedon Ranges and has an elevation of around 350 metres, a good location for VHF/UHF.

This year Ian, VK3JQ and I ran an Icom HF rig the ICOM IC-701 into a Bushcom dipole, an IC-706 (all band), an IC-2200 for VHF FM and a portable IC-V82 to play around with around the camp site.

WANSARC members who kindly donated time to the JOTA effort included Rod VK3MRT, Mark VK3PI, and Jesse, VK3FJPM. Many thanks to those people for kindly pitching in, without you blokes the whole weekend would just not have been possible.

The kids were talking to WANSARC members on VHF and Ian had them talking further afield using HF. His contacts included O/S stations in Switzerland and Chile.

We managed to work VK1,2,3,4,5,7 and 8. We almost got a VK6 but he was lost in the noise. Peter VK3TQ arrived on the Sunday with his digital mode transceivers on 2m and 70cms were unable to raise any JOTA stations. Better luck next year.

Ian and I will be doing JOTA again next year so why not put your hand up to join in?



Ian VK3JQ and willing radio operators

## A PORTABLE MAST by Martin VK3FMJP

Well, I am on a run it seems.

Having found that the local hardware is now reducing the specifications of the rigid threaded plastic pipe somewhat (the wall thickness is reduced), I thought this option might be an alternative for my squid-di-pole set up.

Most of the ideas I have written about are all interchangeable. I plan to use the pvc adapter that you may have recently seen as a base for the pole below. This is a heavy duty twist-lock extension pole from the paint section of "you know where" (under \$30)

It is 1.8mtr to 3.6mtr and has a cast top thread riveted on for paint rollers etc. More about that later.

The next question was – how do I get my little squid-di-pole on top of this handy pole?

Having a look around I found some handy looking fittings from Plasson again.

These are intended to join flexible plastic pipe to a thread. You can buy a female or male end but I thought the female stronger (mark-one eyeball of course)



It just so happens that the tapered end fits snugly over the cast end of the extension pole. (A wrap or two of tape will hopefully make a non-slip fit)

You might find a half inch female/female joiner fits nicely over the threaded end to pack-out the inside of the unit – or use a bit of off-cut pipe or lots of tape and that inserts into the joiner so there is little movement.

The whole unit slips over the end of the casting and a firm hand turn tightens it up nicely it seems.

Now it is ready for the extra bits that I have covered previously.

I think this will definitely require guy-ropes which I have just made to fit. How high can this go? No idea yet.

Add 500mm at the bottom and another metre at the top – that might give about 5.5mtr.

Obviously, any wind will need to be factored in to ensure it doesn't unlock the pole and it drops suddenly.

A 'python clap' might be reasonable insurance here.

Will have lots of summer days hopefully to shake my winter activities out.

It might be worth another article as I start to explore HF. (PS – Apologies – I referred to Moxon in an earlier article – I meant Plasson -Doh!!!!)



## The Melbourne Underground Rail Loop—an interesting communications problem for Police by Brian VK3RA

When the police metropolitan UHF communications system was being developed in the late 1970s-early 1980s it became my responsibility as officer in charge of the Police Radio Electronics Division (RED) to put radio coverage into the new Melbourne underground rail loop, then under construction, so that police could effectively carry out their functions of law enforcement and coordination of emergencies in the rail loop. This facility was required to be installed and working before the loop was opened for normal train services.

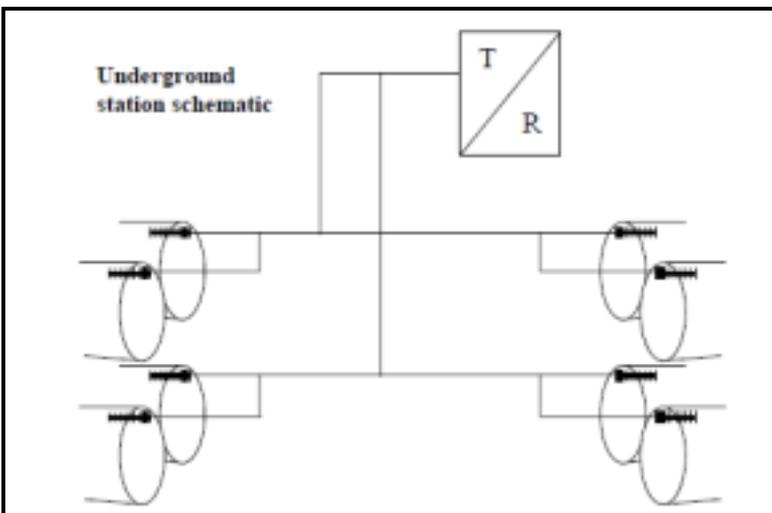
The operational requirement was that a police officer could move from the street level down into the underground stations without any switching of his radio, which would continue to work automatically wherever he went, and he would not be left stranded without communications in what could be a very difficult situation.

Communications were essential but because of financial constraints a leaky coaxial cable system, estimated to cost over \$1M in 1980, was not possible. The Railways had planned such a system but they were not willing to share it with police in case their data communications received interference. We had to look for some other way. We were aware of this requirement while the tunnels were under construction and had tried some experiments with different radio bands, getting very poor results in the raw drilled tunnels without their concrete casing.

The Melbourne Underground Rail Loop Authority (MURLA) directed all aspects of the loop development and they had a consultant communications engineer called Max Thompson who was in charge of communications installations. I became involved with Max in planning the police radio communications. Although he was over 70 years old Max was an energetic person and very interested in the latest developments.

He saw that the Japanese had conducted some experiments successfully using UHF in completed tunnels but it seemed that nowhere in the world was there a proven working system. I canvassed for opinions from our equipment supplier engineers but they were very non-committal about the possibility of success and could only suggest to 'suck it and see'.

The situation was further complicated by the need to use a single UHF channel, the Police City Traffic frequency, as their members had old 1W or 2W portable radios with only 2 or 4 channels and no sophisticated voting and switching systems like the new mobile radios. The old portables had to continue in service and the police personnel using them were the most likely to work in the loop.



Later experiments after the concrete casing with reinforcing steel mesh was installed in the tunnels showed good UHF coverage. We decided that we would have to transmit radio signals directly into the tunnels at the underground stations and hope that the coverage would be sufficient. Max Thompson encouraged us to try, and as there was no other option I recommended to the Department that we should proceed and this was approved.

The RED plan was to install a 50W UHF repeater base at each of the three underground railway stations: Parliament, Melbourne Central (then Museum) and Flagstaff. Each base would distribute/collect the signals via a split antenna system, with high gain yagi antennas pointing into the eight portals at each station (four tunnels, two over two, and with an entrance/exit portal at each end of the station). The gain of the antennas would counter transmission losses from power splitting, filters and coaxial cable lines. The low level power off the back of the antennas was to cover the station concourses and escalators areas. The underground bases would be integrated with the existing aboveground repeater used for the City Traffic Police's normal communications in the streets of the city central business district.



## The Melbourne Underground Rail Loop—continued

We knew that the signals could not be phased and therefore there could be certain areas with very poor reception for portables due to signals mixing from different sources but we counted on the “capture effect” characteristic of FM transmissions to keep it to a minimum.

To obtain the best quality transmissions all audio signals to and from the four bases were conveyed by landlines to the communications equipment room at the Russell Street Police Complex.

There a voting system selected the best signal received from a portable radio in the underground, or a portable or mobile radio at street level, which was then repeated simultaneously on all four base transmitters and thus sent to all other units on the network.

D24 also accessed this network by the landlines.

The system required a lot of installation which was carried out by a police RED team in co-operation with the MURLA engineers.

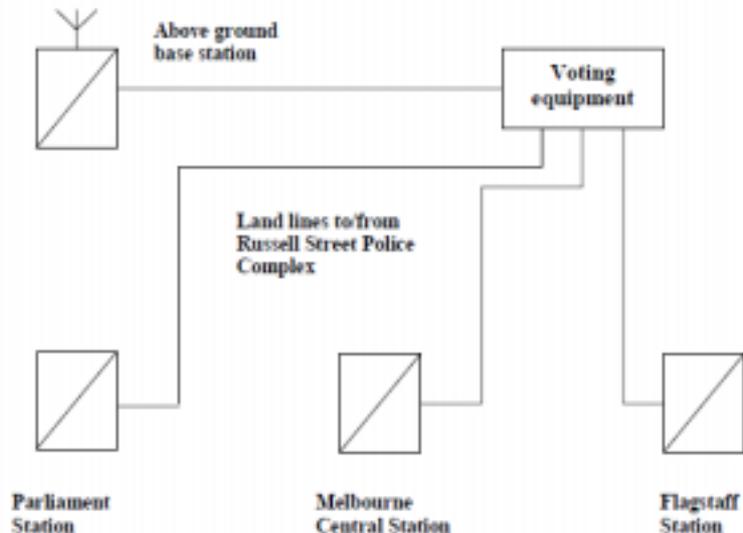
On completion, it was extensively tested, even using a train stopped in the tunnels (arranged by Max Thompson) to simulate a breakdown, a fire, or an accident.

The radio coverage exceeded all expectations.

We found that the interference areas were hardly noticeable. Police personnel were indeed able to walk from street level down into the underground stations without switching channels and stayed in communication with control at D24. The signal strength in the tunnels from our antennas was also greater than expected and in fact a 5-watt portable radio on a train worked effectively anywhere in the loop.

The gamble had paid off.

That 1980 underground radio system was replaced by the new communications in 2006.



**Rail loop cabinet with MMR portable radio during rail loop underground testing. This portable is an MFB portable which is “intrinsically safe”.**

**Postscript 2009**—the police UHF system was replaced with a Whole of Government (WOG) Digital trunking system in 2006 This Metropolitan Mobile Radio (MMR) network caters for Metropolitan Fire Brigade (MFB), Metropolitan Ambulance Service (MAS—now Ambulance Service Victoria) and Victoria Police.

Both MFB and Ambulance use the digital network, which is able to be received by modern day digital trunking receivers.

Victoria Police are the only agency utilizing digital encryption (AES) where transmissions are encoded and are not able to be received by modern day scanners.

The rail loop system design has not significantly changed, in that leaky co-ax is still used to provide a cost effective method of providing radio communications in tunnel areas. The MMR network works in a similar way to the mobile telephone network, in that a number of channels are made available to users, in this case the three emergency services, and these are used for the period of a call then made available for other users. As call times are generally short, this means that a “channel” may be used multiple times “on demand” rather than being tied up by one service.

Similar systems are used in road tunnels to enable emergency crews to communicate during incidents. Channel congestion can be a problem, however emergency agencies have modified their standard operating procedures to reduce this risk.

## VHF/UHF Microwave DXpedition from Mike VK3KH

A team of experienced VK amateurs is heading to Norfolk Island this January to operate bands from 6 metres to 10GHz. The DXpedition will operate from **3rd January – 14th January 2010 from Norfolk Island (OC-005) (RG30XX)**

The team from the **VK uWave Group**, will be **Alan VK3XPD, Kevin VK4UH and Michael VK3KH**. Preparation and preplanning is progressing well with accommodation and airfares already booked. As with most remote operations the airfare cost and arrangement are the most difficult part, particularly as the group plans to take a 1.2 metre dish for all bands from 1296MHz through to 10GHz.

A group of VK5 and VK3 operators has organised to travel to Port Macquarie on the NSW coast, with full Microwave gear, to take advantage of the opportunity. A number of ZL operators have also indicated their interested in setting up at favourable locations on the NZ North Island.

It is hoped to use 2 metres as the main propagation indicator, and then move up the bands as propagation/conditions permit. The group will have internet access, and will use the VKlogger ([www.vklogger.com](http://www.vklogger.com)) as the main method of liaison. Operation will be SSB, CW and where possible Digital modes for Meteor Scatter and Tropo paths.

6 Metres will be part of the operation, and we are hoping for opportunities on the “magic band” in all directions. As this is the main Sporadic E season, anything is possible. We will have HF capabilities, but these will be limited as VHF,UHF and Microwaves are our prime focus.

The group is excited about this venture, and we hope we receive support from VK and ZL operators to make it worthwhile. We will post updates as we get closer to the time.

For further information, contact Michael VK3KH at [mdc@cranbournemusic.com.au](mailto:mdc@cranbournemusic.com.au)



## BITS and PI-ieces by Mark VK3PI

The bands may be dead after all! Perhaps it is more a matter of no-one is calling CQ. During the most recent CQ world-wide contest the VK4 stations were romping in on 10 metres. A number of strong European and Asian stations were also heard, so perhaps the bands are more lively than we think.

**Frank VK3OP** is prepared for the 6 metre DX with his beam pointed towards the Pacific, awaiting the first hint of pacific island DX.

**Bob VK3EL** has also been playing a little on 6 metres, with his half size G5RV loading up very well on that band. And to think the G5RV was a waste of an antenna?

**Martin VK3FMJP** has been very active on air and also writing articles for this humble journal. Thanks Martin—great to have your willingness to share your experiences with others, so keep it up! More of Martin's articles will be seen in coming journals.

**Peter VK6YSF** has also been busy with his pen (computer) and next month will see a bumper issue of the WANSARC news with an article by Peter on how to build an Antenna Matching Unit. This is one not to be missed as Peter has put a great deal of effort in describing his construction with words and fantastic photographs. Thanks Peter and worth noting that your articles on sunspots and matters solar have been very well received by club members and readers.

The move of **Don VK3HDX** and his wife Margaret is near complete, despite some drama's with the furniture. Seems the transport carrier was not able to find Sydney and sent the furniture to far North Queensland. No need to give members the name of this firm, Don—we could have sent your furniture to any place other than Sydney at a fraction of the cost of that mob!! On a more serious note Don will be having some major surgery in the days to come and very best wishes are extended to you Don for a successful procedure!

From **Serge VK3XAR** comes the following website URL—(<http://spaceweather.com/>) This website provides the latest information on space weather and is worth a look! Thanks Serge for this information **73 de Mark VK3PI**



## WANSARC CLUB PROFILE

### History

The Western and Northern Suburbs Amateur Radio Club (WANSARC) was first formed in 1969 and since then has served the needs and interests of amateur radio operators, short wave listeners and those interested in hobby radio and electronics. The club is not gender specific, having both female and male members. Members come from all walks of life with a mix of experience, young and mature, novice and technical. The most important aspect of the club is the willingness of all members to share their knowledge for the benefit of others. Members mainly reside in the west and north of Melbourne; however membership is encouraged from all interested.

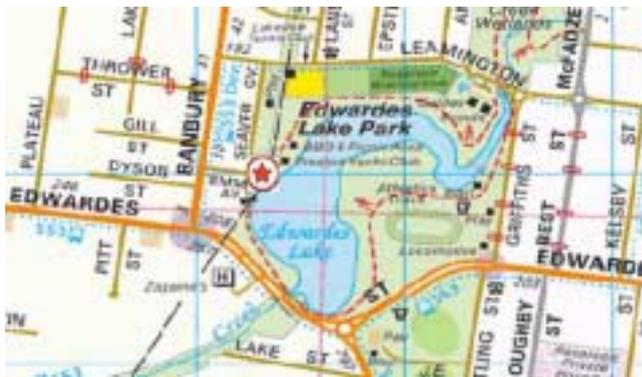
### Meetings

FIRST Friday of each month except January at the Ern Rose Memorial Pavilion, SEAVER GROVE, RESERVOIR. (See map). 7.30pm local time start.

Talk in on 146.450MHz FM—call club station VK3AWS.

### Benefits

Free technology and related presentations, sponsored construction activities, discounted (and sometimes free) equipment, network of like



minded radio and electronics enthusiasts, excellent club facilities and environment plus an informative monthly newsletter for members to post articles, news, classifieds for all radio, test equipment, etc, featuring Amateur Radio news from WANSARC, WIA, ACMA, Melbourne Clubs, VK and Worldwide.

### Club Nets

146.450MHz FM each Tuesday evening commencing 7.30pm local time. Also monitor 28.470MHz on 10 metres USB.

**More Information:** Website: [www.wansarc.org.au](http://www.wansarc.org.au)  
Email: [wansarc@wia.org.au](mailto:wansarc@wia.org.au)



**Don't forget the "club"  
meets on air regularly on  
146.450MHz FM.**

**Next meeting Friday November 6, 2009 AT the clubrooms 1930 hours  
SHARP Talk in 146.450MHz FM.**

**If not delivered within 7 days, please return to WANSARC, PO Box  
336, Reservoir, 3073**

**Australia Post stamp  
here**