THE WORLD BELOW 400 GHz

The Periodical Newsletter of the
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WAIKATO VHF GROUP EXECUTIVE

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General Meeting June 2012

Arrangements have been made with Branch 86, Suburban Amateur Radio Club, to visit **Musick Point**, Auckland on Sunday, 17th June, 2012. See website for location map and other details.

We plan to be there at 12.30pm and will be treated to a BBQ lunch (cost not known as yet) shortly after we arrive. Private vehicles will be used, so be prepared to assist with petrol costs.

Contact David King (ZL1DGK) if you wish to leave from Tauranga.
Contact Gavin Petrie (ZL1GWP) if you wish to leave from Hamilton.

See their phone numbers above.
Email - Gavin Petrie – zl1gwp@nzart.org.nz or David King – zl1dgk@nzart.org.nz

PLEASE NOTIFY THE ABOVE IF YOU WISH TO ATTEND NO LATER THAN 12 JUNE, 2012.
WE NEED TO KNOW NUMBERS FOR CATERING PURPOSES.

General

Progress is being made on the Maungakawa portion of the Waiplenty network.
A funding application is being processed to help finance this portion of the network.
Some hardware such as filters have been located and either paid for or donated to the cause. Thanks to those who have been generous in supporting the development of the network.
Some filter hardware recently purchased has undergone significant refurbishment to bring it up to a standard which should last several more decades.
A big vote of thanks to those involved.

The cost of developing this network is very significant (!) Any support to the group, such as by donating money to support existing infrastructure (such as repeaters and beacon licensing) is really appreciated. There are other costs such as mains power at a number of sites, along with occasional one off-costs to keep the network running.

We have had antennas/feeders fail, and other costs such as replacement door plates which all have to be paid for.

The scribe does a small part in trying to raise funds each year from the trading tables at both the Hamilton Amateur radio Club (Branch 12 NZART), and Radio Electronics Group (Branch 89 NZART) Market day/Sales. A sum of $190 was raised at the REG sale a few weekends ago. On that note, the scribe is looking for an assistant to help man the table during these sales. No previous experience required. Its a social event, in addition to selling stuff.

If those reading the newsletter can increase the membership, or donations to the group then this would be really appreciated and would help the continuation of the groups network of Repeaters and Beacons
Thanks.

Beacons

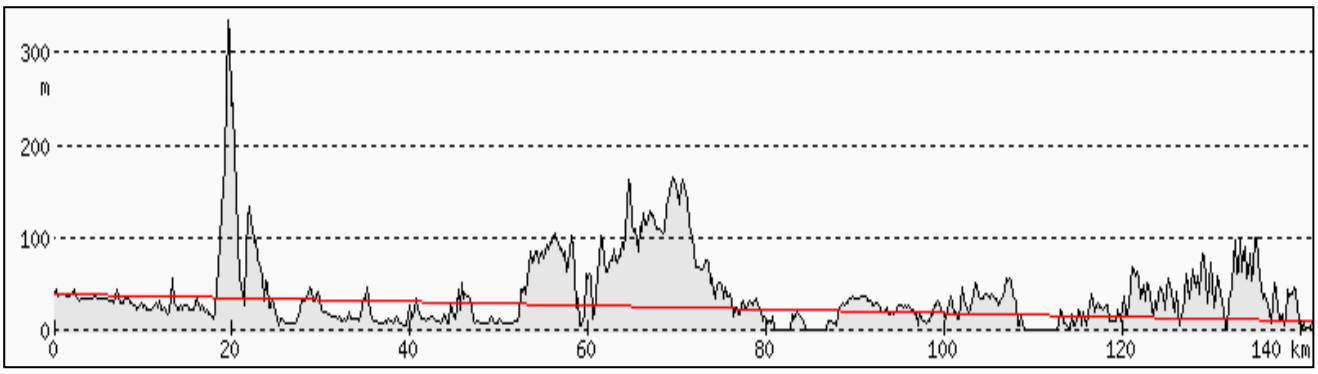
The scribe along with Stephen ZL1TPH has developed a new beacon listing, which will help see which beacons are active.
This info is available at http://www.nzart.org.nz/assets/beacons/nz-beacon-list.pdf
Mark ZL2WHO (a new club member from Palmerston North) has developed a high power 6m beacon which is run from a central North Island site. The frequency is 50.024 MHz.
The Upper Hutt 6m beacon on 52.275 MHz, has also been reactivated after some recent antenna work. Other beacons are also being worked on to reactivate them. Often the beaconkeepers have no information regarding activity reports. It is only when something fails that they get told. So keep feeding reports to the beacon keepers.

Repeaters

Also reports on the repeaters quality is worthwhile. A point to note is that the Te Uku 145.675 MHz repeaters coverage is far more favourable to those in the Hamilton region, than going through the Te Weraiti 146.950 Repeater. See www.zl1is.info for further detail.

10GHz

With the recent rain, ZL1TPH and the scribe, tried some path tests between Hamilton and Orewa. This is almost impossible path on 1.3 GHz, with high path loss causing signals just barely above the noise, even on that band.



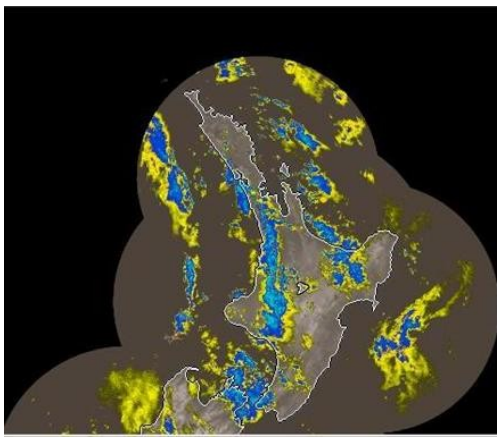
Path profile with Hamilton left to Orewa right.

Anyway one evening just as the scribe arrived home, Stephen said "lets have a try on 10GHz Rain Scatter"

The gear was already prepared in Hamilton with an old 600mm Phase 3 2.4GHz dish, into an elderly 10GHz 500mW transverter (G3WDG design) built by Tom ZL1THG. IF FT290Mk2

Stephen had his 10 GHz gear up on a pole in the garden, which is just above sea level. (Yes Stephen will get wet if he walks off the end of his garden... ☺) Stephen runs about 3watts TX power at the dish.

The TX was set in beaconing mode, while a big weather front passed (see image below).



There are a number of variables to Microwave activity. One is frequency and the other being heading. Although the scribe had a frequency marker set, Stephens frequency was unknown. The direction of Orewa is well known from the scribes QTH.

The scribe tuned up and down the band +/- 100 kHz. Nothing... ☹ Then out of the noise.... Stephens signal appeared, somewhat off frequency. Stephens keying was there, with a mushy tone, due to scattering of the signal. Level about 6 to 10 dB out of the noise.

After about 2 minutes monitoring the signal dipped into the noise again as the front passed.

Despite further attempts that evening nothing more was heard. The point was raised that it was possibly aircraft scatter.

The following weekend some testing was done at bouncing signals off aircraft, but nothing was heard, over many hours, despite many domestic aircraft departing and arriving at Auckland Airport.

Some days later, Stephen ZL1TPH was successful in working Simon ZL1SWW, Glendowie, (homestation) over a 37 km obstructed path.

Some further developments at the scribes QTH, at improving the power and dish size, will hopefully provide positive results, over the winter months.

Aircraft (AS) and rain scatter (RS) are possible on many bands even to VHF (AS), and VK stations regularly work over many hundreds of kms, so definitely worth a go...

Coax

Now before winter, is probably a good time to check coax cables. The first point to make is that sometimes the mechanical joints fail, or undo. I have picked up a number of cables where joints are mechanically loose. A fellow amateur in Hamilton, had a BNC connector fall to pieces as he picked it up to use it. Around the connectors, the braid is a common failure, when it disassembles itself. Foil covered coax, can tear the foil. Foam coax doesn't withstand damage well when the foam is compressed. Solid inner coax can fracture (RG58U)

Replacing/repairing a bad cable isn't that difficult, as many people have the correct tools to replace a crimp connector. A common thing to do is put some heatshrink over the crimp part of the connector which helps with waterproofing and strain relief. For outside use some form of extra covering such as Butyl rubber tape or Denso, and Electrical tape is necessary

Checking coax cables in the shack, between units is worthwhile as failures can occur. Also check your outside cable. More than one station has had watercooled feeders. Checking SWR may not pick up water/ or other losses in the cable. If there is 10 dB loss in the cable, (due to Murphys Law) then it will look good whether the antenna is off or not. With a good path it may not be noticeable.

Check your SWR across the bands, with some sort of antenna tester.
Use good quality coax.
The scribe has a number of coax connectors suitable for both RG58 and RG213 sized coax, along with the crimp tools.

Another point to note is that the scribe has found that some UHF antennas for the commonly available handhelds are resonant near the UHF (CB/PRS) bands not near 70cm and not very effective. (or are effective at heating the PA up) I have sourced an alternative which was correctly resonant. But that's for another issue...