

# Ham Hum

March 2010



The official newsletter of  
The Hamilton Amateur Radio Club (Inc.)  
Branch 12 of NZART - ZL1UX  
Active in Hamilton since 1923



**Next General Meeting**  
**17th March—7:30pm**

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## **From the Committee and/or Editor**

### **AGM Report**

I missed the AGM this year, which isn't my habit, but I have received some information.

Officers were elected into various positions, and the list opposite has been updated to reflect any changes.

Subs remain the same thanks to excellent work from the committee. \$35 Individual/\$40 Family/\$30 Un-waged. These subs are now due and can be paid at any General Meeting. We are also planning an insert in an upcoming Ham Hum.

I hope to include bits and pieces from the various reports to the AGM in upcoming issues.

Enjoy,

Editor

**Next Committee Meetings -  
3rd March & 7th April**

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## **SB PROP ARL ARLP007**

### **ARLP007 Propagation de K7RA**

We've now observed sunspots continuously for the past 30 days, certainly a turnaround from the quiet conditions of the past few years. In fact, in ten weeks we have seen only three days with no sunspots, on December 25, January 6 and January 19. This is a little over 4% no-sunspot days, a nice contrast with all of 2009, with over 71% days with no sunspots.

Sunspot group 1049 emerged on Wednesday, and it is growing.

The minimum non-zero sunspot number is 11. This is because the numbers are derived from the number of sunspot groups, plus areas inside the groups. Each group counts for 10, so the minimum sunspot number is 11, and the minimum sunspot number for at least two sunspot groups is 22.

In 2009 only 87 days (23.8%) had sunspot numbers greater than 11, and 21 of those days were in December. Only 43 days (11.8%) had a sunspot number greater than 15 (14 of those in December), and only 26 days in 2009 had a sunspot number of 23 or more (none had 22).

Since the first of the year, average weekly sunspot numbers were 14.6, 26.4, 18.6, 28, 14.6, 43.3, and 38.7.

This weekend is the ARRL International CW DX Contest, and there is every reason to expect continued good conditions. Predicted planetary A index for today, February 19 is 10, followed by 5 for the next week. Solar flux for February 19-25 is predicted at 85, 85, 84, 84, 82, 80 and 78. Geophysical Institute Prague predicts quiet to unsettled conditions for February 19, and quiet conditions February 20-25.

The wonderful STEREO tool at <http://stereo.gsfc.nasa.gov/> disappeared about a week ago, and hasn't been seen since. Server problems, I am told, but the folks at NASA who work on the STEREO project say it is out of their hands. They keep expecting it to return in the next 24-48 hours, but it hasn't yet.

At <http://stereo-ssc.nascom.nasa.gov/browse/2010/02/19/> you can see current images from the program, and note that the end of that URL is a date, which you can

change to see images from different days. We just don't get to see that marvelous and very useful spinning Sun animation.

The [http://stereo-ssc.nascom.nasa.gov/beacon/beacon\\_insitu.shtml](http://stereo-ssc.nascom.nasa.gov/beacon/beacon_insitu.shtml) page also has links to data, but I don't pretend to know what much of it means. Next Thursday, February 25 images from the STEREO spacecraft will achieve 88% coverage of the Sun.

Many emails have been coming in this week about a new application for the iPhone that gives real-time views of the Sun from STEREO, and will even alert users if a significant event is taking place. It is called "3D Sun," and you can find out more about it at <http://3dsun.org/> and also in an article at [http://science.nasa.gov/headlines/y2010/17feb\\_3dsun.htm?list1066509](http://science.nasa.gov/headlines/y2010/17feb_3dsun.htm?list1066509).

Another propagation related iPhone app was released last year, which you can peruse at, <http://spaceweather.usu.edu/html/news/featured-activities/articleID=8323>.

We have some new links this week for those who like to monitor ionospheric sounders, or ionosondes.

For an introduction, see <http://ngdc.noaa.gov/ionosonde/>. Check out [http://ngdc.noaa.gov/ionosonde/real\\_time/](http://ngdc.noaa.gov/ionosonde/real_time/) for a geographic view of ionosonde stations and access to their real time data.

Carl Luetzelschwab, K9LA sent a link to an article from 2007 summarizing what must be all the known predictions for the current sunspot Cycle 24. See it at [http://www.swpc.noaa.gov/SolarCycle/SC24/May\\_24\\_2007\\_table.pdf](http://www.swpc.noaa.gov/SolarCycle/SC24/May_24_2007_table.pdf) and note the last page for a colorful representation of the range of predictions.

There is a new article on helioseismology this week in Science Daily. See it at, <http://www.sciencedaily.com/releases/2010/02/100215100517.htm>.

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## Gerard Kilpatrick – ZL1BBS – Silent Key

It is with regret that I inform membership of the passing of Gerry Kilpatrick on the 9<sup>th</sup> of September 2010. Gerry served NZART as a Councillor for 10 years and as Legal Advisor for many years up until just before his death. He was honoured with

Life Membership of NZART in 1990.

Gerry was a friend to Branch 12 having offered legal advice to the Branch when it was needed.

Both the presiding Priest and the person reading the eulogy mentioned among Gerry's four passions, Amateur Radio and his service to NZART. Jim Meachen, ZL2BHF was one of the pallbearers. He will be sorely missed by the Amateur Radio fraternity.

I consider it an honour to have known Gerry.

Tony Case – ZL1UD

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## Amateur Radio data mode ROS proving popular

Although it's only a few days since the first HF contact with the new Amateur Radio data mode **ROS**, it's proving popular with plenty of activity on 14.101 MHz.

ROS is a digital spread spectrum mode but with a narrow total occupied bandwidth of about 2.2 kHz. The software has two Symbol Rates: 16 and 1 baud (the latter aimed at weak signals down to -35 dbS of S/N) and can automatically synchronize any Symbol Rate.

Initial reports talk of it being able to copy signals so weak that they don't show up on the Waterfall and there are early indications that it is several dB better than Olivia. However, HF with its Fading, Doppler, Multi-Path and Interference is a hazardous environment for digital signals and only time will tell how well it performs against the other modes.

One issue the mode has thrown up is the restrictive Amateur Radio License conditions in the USA. Here in NZ we are used to the "Technology Neutral" approach adopted by our regulator MED/RSM. This permits us to devise and use any mode we like with any bandwidth as long as the transmission fits within the Amateur band.

The United States is not so fortunate, there the FCC specifies which modes Amateurs can use and where. Some Amateurs in the States are concerned that FCC regulations appears to prohibit the use of Spread Spectrum below 420 MHz and ROS is a Spread Spectrum mode.

To be fair to the FCC they did try back in 1977 to change from a mode based band plan to one based on bandwidth. At the time the ARRL opposed the change and was successful in defeating it, as a result the development of digital modes was crippled for decades to follow.

In recent years the ARRL has been trying to get the FCC to re-introduce band planning by bandwidth and hopefully they will be successful.

You can download ROS from  
<http://rosmodem.wordpress.com/>

Soundcard Interfacing  
[http://www.southgatearc.org/news/september2007/psk31\\_soundcard\\_interface.htm](http://www.southgatearc.org/news/september2007/psk31_soundcard_interface.htm)

New amateur radio digital mode - ROS  
<http://www.southgatearc.org/news/february2010/ros.htm>

Southgate 2005 - ARRL lobbies for regulation by bandwidth  
[http://www.southgatearc.org/news/november2005/arrl\\_lobby.htm](http://www.southgatearc.org/news/november2005/arrl_lobby.htm)

- Southgate ARC

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## GB7MH – A Non-Icom G2 Repeater

My local Amateur Radio Club in Crawley, West Sussex, had been looking for a repeater site for some while. Finally, they found one – the bell tower of the highest church in southern England in a small village call Turners Hill.

I decided to try to convince the club that we should install a D-STAR repeater – the only problem was that we had no money. Radio site rentals are notoriously high in the UK, and we were very lucky in that the church were prepared to let us have access for £1/year.

So, I set about creating my own DSTAR repeater, built around the Satoshi Node Adapter project.

My plan was to build an Icom compatible repeater around the board; in other words, I wanted users not to know that they were using a non-Icom repeater, having the same functions and features as a "real" system. In order to achieve this, my system would need to integrate with the K5TIT-run Trust Server, understand the G2 routing protocol and be able to host third-party applications such as D-Plus and D-STAR Monitor.

Based around a Mini-ITX system with a 4GB CF card and running CentOS 4, GB7MH went on-air in September 2009 using a Tait T800 repeater and a Satoshi Node Adapter running v4.48.1L code. Users can G2 route, D-Plus link and GPS/last-heard information is sent to [dstarusers.org](http://dstarusers.org) via D-STAR Monitor.

The antenna at the church is hidden inside the fibre-glass flagpole and the Internet connection is provided using a WiFi link from a router in the nearby church hall. Keeping costs to a minimum, the Satoshi board cost around £50, the Mini ITX system less than £30, and the repeater was free, leaving just the cost of the antenna, duplexer and Internet link.

For more information on the project, please see the February 2010 edition of "RadCom", the RSGB magazine, or visit <http://g4ulf.blogspot.com/>

David Lake—G4ULF

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## DV Access Point Dongle Announced

Something new has just been released into the world of D-STAR. The DV Access Point Dongle, released in January by Internet Labs, provides a way to connect to the international D-STAR network. Like their current product, the DV Dongle, the DV Access Point Dongle (DVAP for short) is used with a PC/Mac and an Internet connection. Unlike the DV Dongle, the new product allows Amateur Radio operators to walk away from the computer and transmit/receive D-STAR voice and data using a two meter D-STAR radio.

Both the translucent blue DV Dongle and the new red DV Access Point Dongle plug into a USB port on a PC running Windows XP/Vista/7 or Linux, or an Intel based Mac running Mac OS X. The DVTool software (for the DV Dongle) and the DVAPTool software (for the DVAP) connect to the D-STAR network using an Internet connection. Users may connect to hundreds of D-STAR gateways or reflectors



and communicate with other Amateur

Radio operators from around the world. Both voice and data modes of D-STAR are supported. The DVAP is basically a GMSK

modem with a two meter transceiver built in. GMSK (or Gaussian Minimum Shift Keying) is the protocol used by D-STAR for the RF portion of the network. GMSK is probably best known for use in GSM cellular networks. Using the DVAP hardware designed by Moe Wheatley (AE4JY) and DVAPTool software designed by Robin Cutshaw (AA4RC), the frequency agile DVAP is tuned to frequencies between 144 and 148 MHz in IARU regions 2 and 3, and 144 to 146 MHz in region 1. Once the device is opened in DVAPTool, the Amateur operator may then walk away from the computer and control the software using a D-STAR radio such as an Icom IC-80/91/92 HT. The DVAP has a maximum power output of about 10 dBm (or 10 milliwatts). This gives the unit a range of about 100 yards/meters using the included SMA based antenna. It is possible to extend the range using an outside antenna. The DVAP is designed for use around the house, yard, and neighborhood.



Current users of gateway connected D-STAR repeater systems will feel right at home with control of the DVAP. Similar to controlling gateway based dplus software written by Robin Cutshaw (AA4RC), control commands are issued from a D-STAR radio using the URCALL field. Set the URCALL field to "DVAP I" for voice response device information, "DVAP E" for echo test, and "REF001CL" or "U" to link/unlink to reflector 001 module C (for example). Once connected to a gateway or reflector, use "CQCQCQ" to communicate with users on the target system.

The DV Access Point Dongle is commercially available through Amateur Radio stores in the US and will soon be available in the EU. Note that a D-STAR radio is required to communicate with the DVAP and an Internet connection is required to communicate with the D-STAR network.

-dstarinfo.com

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## Amateur Radio Reverse Beacon Network

Instead of beacons actively transmitting signals, the **Reverse Beacon Network** is a network of stations listening to the bands and reporting what stations they hear, when and how well.

It enables you to see band openings in near-real time on an animated map. You can call a quick CQ, and see which reverse beacons hear you, and how strong you are.

There is also a database of past "spots". You can instantly find out what stations, from a given country or zone, have been heard, at what times and on what frequencies. You can see when you've been spotted, who spotted you, and how loud you were.

The Reverse Beacon Network depends on volunteer stations. Currently, there are a few dozen, some active almost 24/7, others coming up only occasionally.

Find out more at <http://www.reversebeacon.net/>

The screenshot shows the Reverse Beacon Network website interface. At the top, there are navigation tabs: welcome, main, dx spots, skimmers, downloads, about, and contact us. Below the navigation is a world map with various colored dots representing stations and lines connecting them. The map is powered by Google and includes zoom controls and map style options (Map, Satellite, Hybrid). To the right of the map are options for showing/hiding spots, a spots format dropdown (set to 'dwatch'), a map beta version toggle (set to 'show'), and a spots lifetime dropdown (set to 'no timeout'). Below the map is a 'news' section with a link to the RBN blog and a 'statistics' section showing 19 skimmers online and 29 visitors online. A 'skimmers online' list includes call signs and their active bands. At the bottom of the map area is a 'Latest DX ZONE' button.

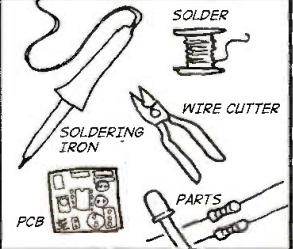


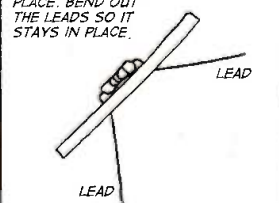

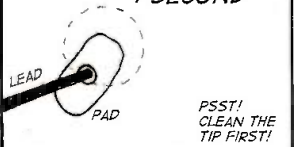
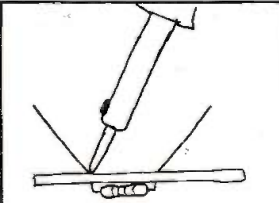
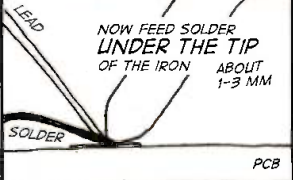


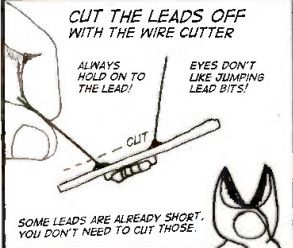
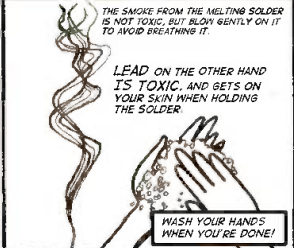
no filter selected, showing all spots rows to show: 100

search spot by callsign

de	dx	freq	cq/dx	snr	speed	time
WZ7I	W5JJK	3538.0	CQ	23 dB	19 wpm	0208z 26 Feb
N6NC	K5DI	7068.5	CQ	14 dB	18 wpm	0208z 26 Feb
RN4WA	7Z1HL	7028.9	CQ	9 dB	28 wpm	0208z 26 Feb
K1TTT	J7N	3513.0	CQ	32 dB	28 wpm	0208z 26 Feb
K1TTT	5R8FU	3505.0	CQ	42 dB	21 wpm	0208z 26 Feb
WE4S	J7N	3513.0	CQ	31 dB	28 wpm	0208z 26 Feb
WZ7I	5R8FU	3505.0	CQ	38 dB	21 wpm	0208z 26 Feb
K1TTT	4L1MA	7003.0	CQ	13 dB	28 wpm	0207z 26 Feb
DL0LBS	J7N	3513.0	CQ	22 dB	28 wpm	0207z 26 Feb
K1TTT	KF8R	3539.8	CQ	10 dB	13 wpm	0207z 26 Feb
PA5KT	HA3OK	7020.8	CQ	19 dB	18 wpm	0207z 26 Feb
N6NC	N4AF	7042.2	CQ	17 dB	19 wpm	0207z 26 Feb
N6NC	K5DI	7069.5	CQ	11 dB	18 wpm	0207z 26 Feb
N6NC	N6ZFO	7043.6	CQ	33 dB	20 wpm	0207z 26 Feb
K4TD	VE3EN	7016.0	CQ	32 dB	28 wpm	0207z 26 Feb

# SOLDERING IS EASY

## HERE'S HOW TO DO IT

 <p><b>SOLDER</b></p> <p><b>WIRE CUTTER</b></p> <p><b>SOLDERING IRON</b></p> <p><b>PCB</b></p> <p><b>PARTS</b></p>	<p><b>THE IRON IS HOT!! BE CAREFUL!</b> </p> <p><b>YOUR KIT SHOULD COME WITH INSTRUCTIONS FOR WHAT PARTS GO WHERE AND WHAT WAY!</b></p> <p><b>CLEAN THE TIP OF YOUR IRON BEFORE EACH SOLDER CONNECTION!</b> </p>	<p><b>PUT YOUR PART IN PLACE. BEND OUT THE LEADS SO IT STAYS IN PLACE.</b></p>  <p><b>LEAD</b></p> <p><b>LEAD</b></p>
<p><b>PUT THE PCB DOWN SO YOU CAN SOLDER.</b></p> <p><b>CAREFUL WITH THE SURFACE UNDERNEATH!</b></p> <p><b>FIND SOME GOOD WAY TO KEEP IT STEADY</b></p>  <p><b>IF YOU NEED A THIRD HAND, YOU CAN MAKE A STANDING COIL OF THE SOLDER INSTEAD OF HOLDING IT IN YOUR HAND</b></p>	<p><b>OK, LETS SOLDER!</b></p> <p><b>FIRST, YOU WANT TO HEAT BOTH THE PAD AND THE LEAD FOR ABOUT 1 SECOND</b></p>  <p><b>PSST! CLEAN THE TIP FIRST!</b></p>	 <p><b>TOUCH THE SOLDERING IRON TO BOTH THE PAD AND THE LEAD!</b></p>
<p><b>NOW FEED SOLDER UNDER THE TIP OF THE IRON ABOUT 1-3 MM</b></p>  <p><b>PCB</b></p> <p><b>3 MM</b></p>	<p><b>STOP FEEDING SOLDER, THEN HOLD FOR 1 SECOND SO THE SOLDER CAN FLOW PROPERLY</b></p>  <p><b>PCB</b></p>	<p><b>A GOOD CONNECTION COVERS THE PAD WITHOUT TOUCHING OTHER PADS AND SURROUNDS THE LEAD</b></p> 
<p><b>CUT THE LEADS OFF WITH THE WIRE CUTTER</b></p> <p><b>ALWAYS HOLD ON TO THE LEAD!</b></p> <p><b>EYES DON'T LIKE JUMPING LEAD BITS!</b></p>  <p><b>CUT</b></p> <p><b>SOME LEADS ARE ALREADY SHORT, YOU DON'T NEED TO CUT THOSE.</b></p>	<p><b>THE SMOKE FROM THE MELTING SOLDER IS NOT TOXIC, BUT BLEND GENTLY ON IT TO AVOID BREATHING IT.</b></p> <p><b>LEAD ON THE OTHER HAND IS TOXIC, AND GETS ON YOUR SKIN WHEN HOLDING THE SOLDER.</b></p>  <p><b>WASH YOUR HANDS WHEN YOU'RE DONE!</b></p>	<p><b>KEEP SOLDERING EACH PART IN ITS CORRECT PLACE. REMEMBER SOME PARTS NEED TO GO IN A CERTAIN WAY!</b></p> <p><b>IF ALL YOUR CONNECTIONS ARE GOOD, YOUR CIRCUIT WILL JUST WORK!</b></p> <p><b>THERE ARE MORE TRICKS YOU WILL LEARN AS YOU KEEP SOLDERING, BUT NOW YOU KNOW ENOUGH TO MAKE MANY COOL THINGS.</b></p> <div style="border: 1px solid black; padding: 5px;"> <p><b>SOLDERING COURSE BY MITCH ALTMAN</b>  <a href="http://cornfieldelectronics.com">HTTP://CORNFIELDLECTRONICS.COM</a></p> <p><b>COMIC ADAPTATION BY ANDIE NORDGREN</b>  <a href="http://los.andy.se">HTTP://LOS.ANDY.SE</a></p> </div> <p style="text-align: right; font-size: small;"><b>PUBLIC DOMAIN, USE, COPY, SPREAD!</b></p>

## Upcoming Happenings & Events

<i>Date</i>	<i>Happenings &amp; Events</i>
1st March	HF Net, 3.575 MHz, 19:30
2nd March	VHF Net, 146.525 MHz, 20:00
<b>6th March</b>	<b>Paengaroa Junk Sale</b>
<b>6-7 March</b>	<b>ARRL International Phone Contest</b>
<b>7th March</b>	<b>NZART HQ Info-Line</b>
8th March	HF Net, 3.575 MHz, 19:30
9th March	VHF Net, 146.525 MHz, 20:00
<b>10th March</b>	<b>Break-In copy due</b>
<b>13th March</b>	<b>Colville Connection (AREC)</b>
<b>13-14 March</b>	<b>RSGB Commonwealth Contest BERU</b>
15th March	HF Net, 3.575 MHz, 19:30
16th March	VHF Net, 146.525 MHz, 20:00
<b>17th March</b>	<b>General Meeting</b>
<b>20th March</b>	<b>Auckland Combined Junk Sale</b>
<b>21st March</b>	<b>NZART HQ Info-Line</b>
22nd March	HF Net, 3.575 MHz, 19:30
23rd March	VHF Net, 146.525 MHz, 20:00
<b>27th March</b>	<b>Wellington Radio Expo</b>
<b>28th March</b>	<b>NZART Official Broadcast</b>
29th March	HF Net, 3.575 MHz, 19:30
30th March	VHF Net, 146.525 MHz, 20:00

**3-4 April—NZART Low Band Contest**  
**4th April—NZART HQ Info-Line**  
**10-11 April—Thelma Souper Memorial**  
**17th April—KDMG RTTY Sprint 80m**  
**18th April—NZART HQ Info-Line**  
**21st April—General Meeting**  
**24th April—KDMG RTTY Sprint 40m**  
**25th April—NZART Official Broadcast**  
**6-9 May—40th WRC Rally New Zealand (AREC)**  
**8th May—NZART Boat Anchor Sprint**  
**9th May—NZART HQ Info-Line**  
**15-16 May—NZART Sangster Shield Contest (CW)**  
**23rd May—NZART HQ Info-Line**  
**30th May—NZART Official Broadcast**  
**5-7 June—NZART Conference (Auckland)**  
**12-13 June—NZART Hibernation Contest**  
**3rd July—NZART Memorial Contest**  
**10-11 July—IARU HF World Championship**  
**24th July—Waitakere Sprints (Phone)**  
**7th August—Waitakere Sprints (CW)**  
**7th August—NZART Boat Anchor Sprint**  
**7-8 August—NZART Brass Monkey Contest**  
**August—Hamilton Market Day**  
**21-22 August—Lighthouse Weekend—ILLW**  
**September—Kairangi Hillclimb (AREC)**

## AREC Event Operators Page

<b>WRC Rally NZ/ Possum Bourne Rally</b>	<b>Saturday 6-9 May 2010</b>	<b>Organiser : ZL1DK</b>
Please contact the <a href="#">Section Leader</a> with your team information and he will pass it on to Auckland.		

<b>Rollo's Marine Bridge to Bridge Water-Ski Race</b>	<b>2010</b>	<b>Organiser : ZL1UPJ</b>
<b><u>Position</u></b>	<b><u>Saturday Operator</u></b>	<b><u>Sunday Operator</u></b>
<b>Base</b>		
<b>Start Boat</b>		
<b>Rescue Boat</b>		
<b>X-Band</b>		
<b>A.</b>	Ngaruawahia/Taupiri	
	Start/Finish at Point	
<b>B.</b>	Ngaruawahia Ramp	
<b>C.</b>	Ngaruawahia W/S	
<b>D.</b>	Horotiu	
<b>E.</b>	Pukete Ramp	
<b>F.</b>	Days Park	
<b>G.</b>	Fairfield Bridge	
<b>H.</b>	Malcolm St	
<b>I.</b>	Narows	
<b>J.</b>	Field Days	
<b>K.</b>	Between Pipe and F/Days	
<b>L.</b>	High Level Bridge	

<b>Kairangi Hill Climb</b>	<b>Sunday September 2010</b>		<b>Organiser : ZL1IC</b>
<u>Position</u>	<u>Operator</u>		
1.			
2.			
3.			
4.			
5.			
<b>School Cycling</b>	<b>2010</b>		<b>Organiser : ZL1IC</b>
<u>Position</u>	<u>Operator</u>	<u>Position</u>	<u>Operator</u>
1.		5.	
2.		6.	
3.		7.	
4.		8.	
<b>Colville Connection</b>	<b>Saturday 13th March 2010</b>		<b>Organiser :</b>
<u>Position</u>	<u>Primary Operator</u>	<u>Secondary Operator</u>	<u>Other Operator</u>
<b>Base</b>	ZL1PK	ZL1DGK	ZL1LD
<b>Stony Bay</b>	ZL1TNO	Sandy???	
<b>Fletcher Bay</b>			
<b>Hill 1</b>	ZL1IC		
<b>Hill 2</b>	ZL1TCE		
<b>Fantail Bay</b>	ZL1UPJ	Arthur	
<b>Stand By</b>			

For Details about and to help with these events, contact the person indicated as the organiser for the event. See Page 1 for their contact information.

## Club Information



### Contacts :-

**Business Meeting:** 1930 First Wednesday of each month  
88 Seddon Road, Hamilton

**General Meeting:** 1930 Third Wednesday of each month (except Jan)  
88 Seddon Road, Hamilton

**Homepage:** <http://z11ux.tripod.com>  
**eMail:** [branch.12@nzart.org.nz](mailto:branch.12@nzart.org.nz)

**HF Net:** 3.575MHz LSB 1930 Mondays  
**VHF Net:** 146.525MHz simplex 2000 Tuesdays

**2m Repeater:** 145.325MHz -600kHz split  
**STSP** 146.675MHz -600kHz split  
**Repeaters:** 438.725MHz -5 MHz split  
**ATV Repeater:** 615.250 Ch39 (off air)

*Cover Photo: New digital mode ROS from José Alberto Nieto Ros*

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