

Ham Hum

March 2014



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



Next Meeting :
19th March 19:30—Colin McEwen
6 Metres

Disclaimer: The Hamilton Amateur Radio Club (Inc) accepts no responsibility for opinions expressed in this publication. Where possible, the articles source details will be published. Copyright remains with the author or HARC. All rights reserved.

Contact Details

Patron:			
Russell Richardson	ZL1RWR		
President:			
"Jono" Jonassen	ZL1UPJ		z1lux@nzart.org.nz
Vice Presidents:			
Gary Lodge	ZL1GA		
Gavin Petrie	ZL1GWP	843 0326	z1gwp@nzart.org.nz
Secretary:			
Phil King	ZL1PK	847 1320	z1pk@nzart.org.nz
AREC Section Leader:			
Mike Sanders	ZL2MGS	855 1612	z12mgs@nzart.org.nz
Deputy Section Leaders:			
"Jono" Jonassen	ZL1UPJ		z1upj@nzart.org.nz
Phil King	ZL1PK	847 1320	z1pk@nzart.org.nz
Treasurer:			
Tom Powell	ZL1TJA	834 3461	z1tja@nzart.org.nz
Committee:			
Robin Holdsworth	ZL1IC	855 4786	
Colin McEwen	ZL2CMC		
Cameron Mumford	ZL1CNM		
Kev in Murphy	ZL1UJG		
Terry O'Loan	ZL1TNO		
Mike Sanders	ZL2MGS	855 1612	z12mgs@nzart.org.nz
Ham Hum Editor:			
David King	ZL1DGK	579 9930	z1dkg@nzart.org.nz
Ham Hum Printer:			
John Nicholson	ZL1AUB	855 5435	
ATV Co-ordinators:			
Phil King	ZL1PK	847 1320	z1pk@nzart.org.nz
Robin Holdsworth	ZL1IC	855 4786	
Market Day Co-ordinator:			harcmday@nzart.org.nz
Robin Holdsworth	ZL1IC	855 4786	
Webmaster:			
Gavin Petrie	ZL1GWP	843 0326	z1gwp@nzart.org.nz
BBS Team:			
Phil King (sysop)	ZL1PK	847 1320	z1pk@nzart.org.nz
Alan Wallace	ZL1AMW	843 3738	z1amw@nzart.org.nz
Doug Faulkner	ZL4FS	855 1214	
Gavin Petrie	ZL1GWP	843 0326	z1gwp@nzart.org.nz
Club Custodian:			
Currently vacant			
Equipment Officer/Quartermaster:			
Colin McEwen	ZL2CMC	849 2492	
QSL Manager:			
Sutton Burtenshaw	ZL4QJ	856 3832	suttonb@slingshot.co.nz
Net Controllers:			
80m net—Phil King	ZL1PK	847 1320	z1pk@nzart.org.nz
2m net—Phil King	ZL1PK	847 1320	z1pk@nzart.org.nz
NZART Examiners:	ZL1IC, ZL1PK & ZL1TJA		

From the Editor

We welcome our new patron ZL1RWR to the club. Russell has extensive experience in radio communications via his company Richardson Communications (aka RICOM), in Amateur Radio, and with the Hamilton Amateur Radio Club. His strong support for the Hamilton Amateur Radio Club make him an ideal patron.

The Hamilton Market Day will be happening on 9th August this year. As always, expect lots of buyers, sellers, social time with your fellow Hams and a WARO meeting. More details to come in future issues of Ham Hum, club nets and the NZART Official Broadcast.

**Next Committee Meetings -
5th March & 2nd April**

SB PROP ARL ARLP009

ARLP009 Propagation de K7RA

We saw an increase in solar activity over the past week, and it appears that perhaps the second peak of Solar Cycle 24 is not over.

Average daily sunspot numbers from February 20-26 increased nearly 24 percent from the previous seven days, from 140.4 to 173.6. Average daily solar flux over the same period rose from 158.7 to 167.3. On Thursday, February 27, the sunspot number increased from 197 on Wednesday to 227, which is over 30 percent above the average for the previous seven days.

Predicted solar flux over the near term is 175 on February 28, 175 on March 1-2, 165 on March 3-5, 170 on March 6, 175 on March 7, 180 on March 8-9, then 175 and 160 on March 10-11, 145 on March 12-13, 150 on March 14-17, and 155 on March 18-20, peaking at 180 on March 26 and again on April 2-4.

Predicted planetary A index is 25 and 8 on February 28 and March 1, 5 on March 2-6, 8 on March 7, 5 on March 8, 10 and 5 on March 9-10, 8 on March 11, and 5 on March 12-22. An echo of recent flare activity shows about 28 days later as a planetary A index of 15 on March 27-28.

OK1HH predicts the geomagnetic field will be quiet on February 28 through March 4, mostly quiet March 5, active to disturbed March 6, quiet to active March 7, active to disturbed March 8, quiet to unsettled March 9, mostly quiet March 10, quiet March 11-14, quiet to active March 15-16, mostly quiet March 17-18, and active to disturbed on March 19.

On Thursday, February 27 a CME hit Earth at 1645 UTC. This was from the X4.9 solar flare reported February 25. The planetary A index increased to 24, which was the same reading for Alaska's college A index. Mid-latitude A index was 15.

If you look at the Daily Sun image on the left side of the page at <http://spaceweather.com/> you will see it is peppered with sunspots. Unfortunately, sunspots in this cycle have not been very energetic, so we haven't seen much of the higher MUF figures normally associated with this many spots.

There is a new aurora prediction tool online at <http://www.swpc.noaa.gov/ovation/>. OVATION was developed at the Johns Hopkins University Applied Physics Lab, and passed on to us by Robert Steenburgh, KA8JBY who works at NOAA.

No email from readers this week, for the first time in ages, so nothing to report from the field.

Tonight begins the phone weekend for the ARRL International SSB DX Contest. It runs from March 1-2, 2014, which is actually 4:00 PM Friday through 3:59 PM Sun-

day here on the West Coast. See <http://www.arrl.org/arrl-dx> for details.

If you would like to make a comment or have a tip for our readers, email the author at, k7ra@arrl.net.

For more information concerning radio propagation, see the ARRL Technical Information Service web page at, <http://arrl.org/propagation-of-rf-signals>. For an explanation of the numbers used in this bulletin, see <http://arrl.org/the-sun-the-earth-the-ionosphere>. An archive of past propagation bulletins is at <http://arrl.org/w1aw-bulletins-archive-propagation>. More good information and tutorials on propagation are at <http://k9la.us/>.

Monthly propagation charts between four USA regions and twelve overseas locations are at <http://arrl.org/propagation>.

Sunspot numbers for February 20 through 26 were 140, 152, 179, 185, 205, 157, and 197, with a mean of 173.6. 10.7 cm flux was 156.4, 156.8, 163.2, 171.8, 170.7, 173.9, and 178.2, with a mean of 167.3. Estimated planetary A indices were 39, 12, 14, 17, 7, 4, and 4, with a mean of 13.9. Estimated mid-latitude A indices were 27, 9, 11, 12, 5, 3, and 3, with a mean of 10.

6 metre Antenna Designs

Grant Taylor ZL1WTT has been seeking obsolete VHF TV antennas which will be surplus after Sat 01 Dec 2013. The materials from a few of these can be recovered for use in a 6 m beam.

Below is the detail he supplied.

Here is my design for the 5 element 6 metre Yagi.

R=2.922m R-DE=0.99m

DE=2.72m DE-D1=0.76m

D1=2.6m D1-D2=1.52m

D2=2.56m D2-D3=1.71m

D3=2.325m

All elements are cut from 9.52mm tubing

The boom is made from 5m length of 25mm by 2mm thick tubing

DE is a cut down folded dipole from a channel 1 antenna (45MHz).

Mounting hardware was reused brackets and bolts from low band VHF TV antenna.

Balun use was a RG-58 U type, VF of 0.66 to match in to 200 ohms feed point.

Testing:

VSWR 1:1.1 from 50 to 52MHz, 1:1.7 at 53MHz.

Gain from 9.9 to 10.7 dBi

Artide from Auckland VHF Group magazine Spectrum of December 2013



More Ham Radio CubeSats Expected to Deploy from ISS This Week:

Another batch of CubeSats were deployed at noon on February 25 from the International Space Station. While no Amateur Radio satellites were among them, NASA has indicated, "More deployments are scheduled through Friday." NASA said this week that flight controllers from the Japan Aerospace Exploration Agency (JAXA) "maneuvered the Kibo laboratory's robotic arm into position" for the launches. The Multi-Purpose Experiment Platform, which carries the NanoRacks <http://nanoracks.com/> CubeSats, is attached to the arm. NanoRacks provides CubeSat deployment services through an agreement with NASA. JAXA astronaut Koichi Wakata, KC5ZTA, has been handling CubeSat deployments aboard the ISS.

Four Amateur Radio CubeSats -- LituaniaSat-1, LitSat-1, ArduSat-2, and UAPSat-

1, along with the 915 MHz SkyCube -- may be deployed February 28. CubeSats deployments are streamed live <http://m.ustream.tv/channel/live-iss-stream>. AMSAT-UK has reported that it's unclear whether another Amateur Radio CubeSat, the Peruvian Chasqui 1, which was sent to the ISS on February 5, also will be deployed on February 28.

Eight NanoRacks deployers are installed on the Multi-Purpose Experiment Platform. Each deployer can hold up to six 1U (a unit = 10—10—10 centimeters) CubeSats or two 3U CubeSats. Two 3U CubeSats (6U total) can be deployed every one to two orbits to prevent collisions.

LituanicaSAT-1 <https://www.facebook.com/Lituanicasat1> carries an FM transponder: Uplink 145.950 MHz/Downlink 435.180 MHz. It also has an AX.25 transponder: Uplink 145.850 MHz/Downlink 437.550 MHz. The CW beacon is on 437.275 MHz.

LitSat-1 <https://www.facebook.com/palydovas> carries an SSB transponder: Uplink 435.180 MHz/Downlink 145.950 MHz, and an AX.25 packet transponder: Uplink 437.550 MHz/Downlink 145.850 MHz.

ArduSat-2 <http://www.kickstarter.com/projects/575960623/ardusat-your-arduino-experiment-in-space> will transmit 9.6 MSK CCSDS data on a 437 MHz downlink.

UAPSAT will carry an AX.25 packet transponder: Uplink 145.980 MHz/Downlink 437.385 MHz.

Chasqui-1 <http://www.chasqui.uni.edu.pe/eng.html> will transmit AX.25 format data on 437.250 MHz.

AMSAT-UK has reported <http://amsat-uk.org/2014/02/23/launch-of-japanese-amateur-radio-satellites/> that, in addition to the CubeSat deployments from the ISS, seven Japanese Amateur Radio satellites are scheduled to launch from Earth February 27 at 1807 UTC.

The Amateur Radio on the International Space Station (ARISS) project -- the ARISS-EU "Ham Video" system -- is tentatively set to begin the commissioning process no sooner than the second weekend in March. Ham radio-related activities aboard the ISS typically take a low priority on the astronauts' work agenda.

Meanwhile, there's some bad news regarding the Delfi CubeSat, Delfi-n3Xt <http://www.delfispace.nl/operations/radio-amateurs>. Program Manager Jasper Bouwmeester PC4JB, reported the results of testing carried out on the CubeSat's 435/145 MHz linear transponder. "Unfortunately, we have not heard anything from Delfi-n3Xt since Thursday [February 20], after our transponder test," Bouwmeester said. "Nothing seemed to be wrong, except for the transponder itself not properly working." Bouwmeester said the Delfi team suspects a hardware failure and has been attempting to revive the satellite. Delfi-n3Xt transmits at about 145.870 MHz.

Union Station Wall Represents Song Lyrics in Morse Code

WASHINGTON (CBSDC) — An interesting-looking bumpy, yellow structure inside Union Station in D.C. represents a lot more than the naked eye might notice.

As it turns out, the bumps are morse code representations of the lyrics from Death Cab for Cutie tune "Soul Meets Body."

The structure will eventually be an info station, according to WNEW's Kevin Patrick.

Architect Todd Ray told niche web-zine CompositesWorld.com in November that his firm, [Studio Twenty Seven Architecture](http://StudioTwentySevenArchitecture.com), wanted to develop an "iconic and meaningful design that conveyed a message."

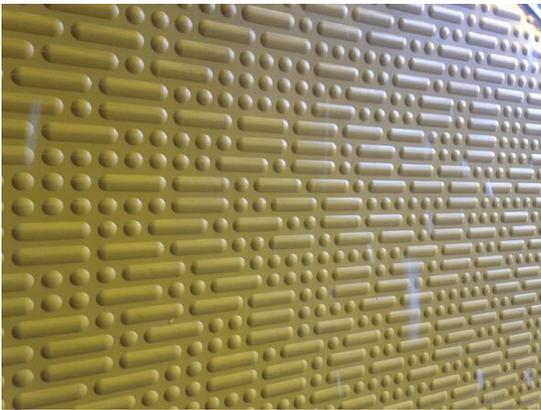


With the help of Woodbridge, Va.-based Smart Design Inc., the firm was able to procure the morse coded fiberboard pieces that make up the panel.

The portion of the song imprinted into the wall is:

*'Cause in my head there's a Greyhound Station
Where I send my thoughts to far off destinations
So they may have a chance of finding a place
Where they're far more suited than here*

Ray says the words convey the "impermanence and transience that is a bus depot."



Most intense flare of 2014

Space Weather report the returning sunspot AR1967 unleashed a powerful X4.9-class solar flare on Feb. 25 at 00:49 UT

They say: This is the most intense flare of 2014 so far, and one of the most intense of the current solar cycle. Although this flare is impressive, its effects are mitigated by the location of the blast site--near the sun's southeastern limb, and not facing Earth. Indeed, a bright coronal mass ejection (CME) which raced away from the sun shortly after the flare appears set to miss our planet.

Radio emissions from shock waves at the leading edge of the CME suggest an expansion velocity near 2000 km/s or 4.4 million mph. If such a fast-moving cloud did strike Earth, the resulting geomagnetic storms could be severe. However, because its trajectory is so far off the sun-Earth line, the CME will deliver a glancing blow, at best, and probably no blow at all.

NASA's Solar Dynamics Observatory recorded the extreme ultraviolet flash, the picture can be seen on the Space Weather site at

<http://spaceweather.com/>



ISS Amateur Radio CubeSats deployed

On Friday, February 28, 2014 at 0730 UT astronaut **Koichi Wakata KC5ZTA** deployed a batch of amateur radio CubeSats from the International Space Station (ISS)

[LituanicaSAT-1](#), [LitSat-1](#), [ArduSat-2](#) (2U), UAPSAT and the 915 MHz [SkyCube](#) were successfully ejected from a NanoRacks deployment pod.

At 0855 UT Dmitry Pashkov UB4UAD [received the LituanicaSAT-1 beacon](#). and [received LitSat-1](#) at 1030 UT.

At 1022 UT Mike Rupprecht DK3WN [received LitSat-1](#). Mike had [heard UAPSAT](#) at 0845 UT.

There is another amateur radio Cubesat still on the ISS, the Peruvian Chasqui-1

which was launched to the space station on February 5, 2014. It is understood that Chasqui 1 is scheduled to be hand-deployed during a future Russian Extravehicular Activity (EVA).

Frequency information at

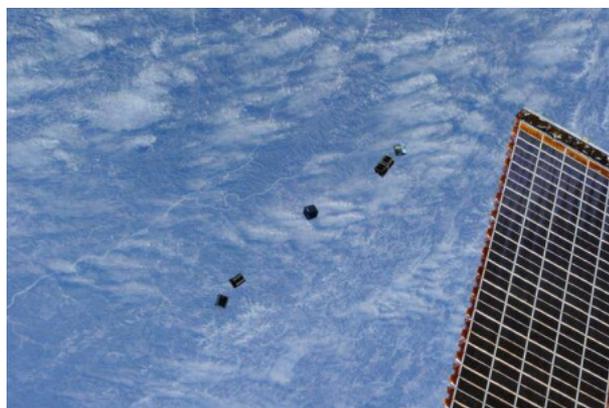
<http://amsat-uk.org/2014/02/20/iss-cubesat-deployments-to-resume-february-25/>

UB4UAD website in Google English

<http://tinyurl.com/UB4UAD>

DK3WN satellite blog

<http://www.dk3wn.info/p/>



Maritime Radio Day 2014

Welcome to the **Maritime Radio Day** 2014 from April 14th 12.00 GMT to April 15th 22.00 GMT

The Maritime Radio Day is held annually to remember the nearly 90 years of wireless service for seafarers. Since its beginning in 1900, Maritime Radio was in use mainly until the end of 1998.

The MRD is open to all Amateur Radio Stations. Special stations (like Coastal radios and ship call signs) can participate to the MRD only if operated by former Commercial or Navy operators, or by radio technicians who worked in the installation and/or maintenance of naval equipment.

If you are a former merchant marine Wireless Operator (or former technician) please register to this event by communicating your certificate type/year and the

details about your MRD activation to R/O Rolf Marschner at: dl9cm@t-online.de

Rules:

- 1 Bands: 160m, 80m, 40m, 20m, 15m & 10m & WARC
- 2 Mode: CW only
- 3 Power: not limited
- 4 QSO – Exchange: QSA, QRK, name, callsign of last or favorite ship / aircraft / maintenance company (DEBEG, SAIT, SIRM)
- 5 Silence periods do not have to be observed
- 6 Deadline of MRD-NC is 1st of May.
- 7 Certificate of participation (CoP) is available via e-mail only (see notes)
- 8 Results of MRD-NC will be published on MRD homepage
- 9 QSL cards: Each participant manages their own QSL card. There is no qsl manager.

Notes:

- QSA (1 to 5) is the strength of the received signal
- QRK (1 to 5) is the readability and additional a : tr, msg and/or a qtc if you like
- Certificate of Participation (CoP):

SWL's have to send a complete log entry.

Licensed operators can send their contact list with naval, coastal, special stations to dl9cm@t-online.de



Upcoming Happenings & Events

<i>Date</i>	<i>Happenings & Events</i>
1st March	Te Puke Junk Sale
3rd March	HF Net, 3.575 MHz, 19:30
4th March	VHF Net, 146.525 MHz, 20:00
10th March	HF Net, 3.575 MHz, 19:30
11th March	VHF Net, 146.525 MHz, 20:00
14th March	NZART HQ-Infoline
17th March	HF Net, 3.575 MHz, 19:30
18th March	VHF Net, 146.525 MHz, 20:00
19th March	Club General Meeting
24th March	HF Net, 3.575 MHz, 19:30
25th March	VHF Net, 146.525 MHz, 20:00
28th March	NZART HQ-Infoline
30th March	NZART Official Broadcast
31st March	HF Net, 3.575 MHz, 19:30

5-6 April—NZART Low Band Contest
11th April—NZART HQ-Infoline
25th April—NZART HQ-Infoline
27th April—NZART Official Broadcast
17-18 May—NZART Sangster Shield
7-8 June—NZART Hibernation Contest
5-6 July—NZART Memorial Contest
2-3 August—NZART Brass Monkey Contest
9th August—Annual Hamilton Market Day
4-5 October—NZART Microwave Contest
2nd November—NZART Straight Key Night
6-7 December—NZART Field Day Contest

For more information on any of the above please contact myself or any committee member.

AREC Event Operators Page

WRC Rally NZ/ Possum Bourne Rally	June 2014	Organiser : ZL1BNQ
Please contact the Section Leader with your team information and he will pass it on to Auckland.		

NZW SRA Bridge to Bridge Water-Ski Race	Nov 30—Dec 1 2014	Organiser : ZL2MGS
<u>Position</u>	<u>Saturday Operator</u>	<u>Sunday Operator</u>
Base		
Start Boat		
Rescue Boat		
X-Band		
A.	Ngaruawahia/Taupiri	
	Start/Finish at Point	
B.	Ngaruawahia Ramp	
C.	Ngaruawahia W/S	
D.	Horotiu	
E.	Pukete Ramp	
F.	Days Park	
G.	Fairfield Bridge	
H.	Malcolm St	
I.	Narows	
J.	Field Days	
K.	Between Pipe and F/Days	
L.	High Level Bridge	

Kairangi Hill Climb	September 2014		Organiser : ZL1IC
<u>Position</u>	<u>Operator</u>		
Start			
1. First bend			
2. Intermediate bend			
3. Top of hill			
4. Paddock			
5. Hall corner			
6. Above hairpin			
Finish			
Colville Connection	February 2015		Organiser : ZL1PK
<u>Position</u>	<u>Primary Operator</u>	<u>Secondary Operator</u>	<u>Other Operator</u>
Base			
Stony Bay			
Fletcher Bay			
Hill 1			
Hill 2			
Fantail Bay			
Ridge/Waikawau			

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 except January
88 Seddon Road, Hamilton

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

Homepage: <http://www.z1lux.org.nz>
eMail: 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: Off air pending channel changes

Cover Photo: Image from Kapiti Coast Museum <http://www.kapitimuseum.org.nz/collections/communications-equipment/>

Sender	Hamilton Amateur Radio Club (Inc) PO Box 606 Hamilton 3240
--------	--