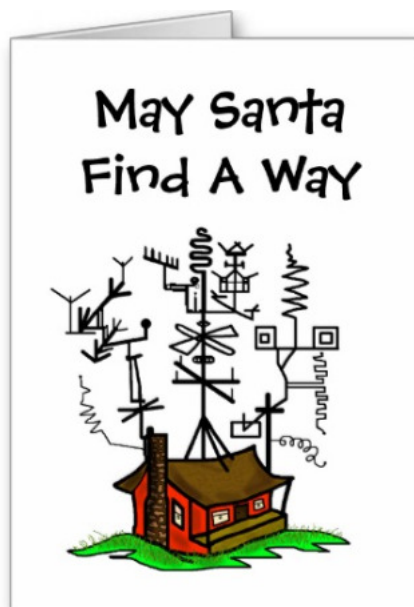


Ham Hum

December 2013



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



Next Meeting :
BBQ : Sat 7th December
11am start

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From the Editor

From our Secretary ZL1PK. "The last meeting addressed by Mike Baird was very interesting. He showed off his current test gear in particular a Rhode & Schwarz very portable receiver from kHz to GHz and also a very portable spectrum analyser from the same stable that covered well into the GHz.

He also covered what RSM does in general.

He explained in detail the temporary 50 to 51 MHz license which applies from 6 December until we get 50 to 51 MHz back in 2015. *{see page 9—Ed}*

Next meeting is the Barbecue on the 7th December from 11 am at the dub rooms until ? Please bring your own food & drink. The dub barbecue will be in use. "

The BBQ will be the final meeting/event for the year. We will start back up on 15th January with a social meeting that may also incorporate some Business & General items if needed.

**Next Committee Meetings -
4th December & 15th January**

The K7RA Solar Update

Sunspot numbers made a profound leap over the past week, with the sunspot number on November 15 reaching 272, then 282 on November 17. This is a record for the current solar cycle, and this level of activity has not been observed for over a decade. Unfortunately the sunspot number declined rapidly since then, falling below 100.

You can check in the ARRL Propagation Bulletin archives to see what activity at this level and higher was like over a decade ago.

Go to <http://arrl.org/w1aw-bulletins-archive-propagation> and check out (in reverse order) bulletins 44 and 45 in 2003, 35 in 2002, 32 in 2002, 19 in 2002, 56 in 2001, 40 in 2001, 38 in 2001, 26 in 2001, 14 and 15 in 2001, 29 and 30 in 2000, 20 and 21 in 2000, 14 in 2000, 46 and 47 in 1999, 27 in 1999, and prior to that there was no sunspot number higher than we saw this week since cycle 22. The last several days with zero sunspots prior to this period are detailed in bulletins 2 and 3 in 1998.

Note that for many of those periods, planetary A index was quite high. So the negative effects of all that high solar activity were geomagnetic storms.

Solar activity was national news this week, and this example has plenty of information about solar flares: <http://www.nbcnews.com/science/sun-fires-powerful-solar-flare-triggering-radio-blackout-2D11623878> .

The heightened activity caused 10 meters to virtually explode, with the band full of signals from around the world.

Average daily sunspot numbers rose more than 67 points from 126.1 to 193.3, while average daily solar flux rose 10 points, from 156.9 to 166.9.

The latest prediction has solar flux at 135 on November 22-23, 130 on November 24-28, 140 on November 29-30, 135 on December 1-3, 130 on December 4, 135 on December 5-6, 130 and 135 on December 7-8, 140 on December 9-10, 135 on December 11-14 and 140 on December 15-18. Predicted values then bottom out at 115 on December 23-24, again on December 28-29, then jumping from 115 again on January 3-4 to 140 on January 5. This is a month and a half from now, so predictive value is dubious. But let's check that again in 2014.

Predicted planetary A index is 5 on November 22 through December 3, then 8, 5 and 12 on December 4-6, 10 on December 7-8, 5 on December 9-11, then 8 on December 12-13, and 5 on December 14-30.

OK1HH in Prague predicts geomagnetic activity will be quiet on November 22-25, quiet to unsettled November 26, quiet to active November 27, quiet to unsettled November 28, quiet November 29-30, active to disturbed December 1, mostly quiet December 2-3, quiet to unsettled December 4, mostly quiet December 5, quiet to active December 6-8, quiet December 9-12, active to disturbed December 13, quiet to unsettled December 14, quiet December 15-18.

Scott Bidstrup, TI3/W7RI, in Costa Rica reported back on November 9, "Today was terrific. Worked dozens of Ukrainian and Eastern European stations this morning on 10 meter PSK with 30 watts into a 5/8 wave vertical. Band conditions were superb, and even now as I write this, more than an hour after sunset, I'm still seeing a few W5 stations, plus JA, VK and ZL on my waterfall, with the ZL stations the strongest."

On November 15 Scott wrote (note this was just before this week's sunspot number peak) "Looking at the current solar magnetograms, it looks like the southern hemisphere spots are becoming fewer but bigger and more intensely magnetized, which, as I understand it, is typical of early post-peak activity. On the other hand, the current imagery and the STEREO B imagery suggest there is a lot more southern hemisphere activity at the moment than there has been lately, so maybe we'll have some good conditions for awhile. I note that the 304a emission has been on an upward trend for some time, and shortwave X-ray has been active too, and is continuing to go up. Good news, at least for as long as it lasts.

"I've been on 10 meter PSK a lot lately, and have noticed that the waterfall isn't as crowded in the last few days as it has been (a week ago, it looked like 20 meters.), and signals have generally been a bit weaker, in spite of the rise in solar activity of the last few days. As before, it's been mostly low latitudes. My friends on 6 meters report to me that they've never seen the trans-equatorial openings into Brazil and Argentina as active as now, and we had the Mother Of All F2 Openings into North America about a week ago (and several smaller ones since). The whole continent was accessible, and my friends are all telling me they worked a dozen or more new grid squares. The only working 6 meter radio I have is FM only, and I didn't hear a peep on 52.525 MHz through the whole thing."

On November 15, N0JK wrote, "On November 10, EA8DBM worked FK8CP at 0055 UTC. This was likely transpolar long path; over 20,000 km. Ten meters has been in good shape all week. Many have worked K9W, T33A and XR0ZR."

Also on November 15, Jim Henderson, KF7E, wrote (about solar activity speculation and a second peak), "I don't know how high it will go, but I felt way back before the last peak that this would be the case. Interesting to see it when so many focus on the weakening field."

"We have better (and more) instruments this peak, so it will be educational. I still believe in Mausumi Dikpati's work (Boulder CO) showing a last gasp before a few lackluster cycles. But most of us will consider ourselves very lucky to be active on HF for the next peak to see which prediction is closest."

Dikpati, many will recall, around 2006 predicted a much stronger Cycle 24, as noted in this outdated Wikipedia entry: http://en.wikipedia.org/wiki/Mausumi_Dikpati . Also see: <http://www.hao.ucar.edu/Public/about/Staff/dikpati/> and <http://www.universetoday.com/71029/the-suns-conveyor-belt-may-lengthen-solar-cycles/> and <http://www.ias.ac.in/jaa/marjun2008/JAA03.pdf>.

KD7DCR of Whitehall, Montana (high in the Rockies in DN35, and way off the grid) wrote on November 17: "After I read this week's report about that F2 (?) opening on 6 meters on Nov 10, I wondered if that is what I saw back on October 27.

"I was working the contest on that date (probably CQ Worldwide SSB DX) and decided to check 6 meters. There were no signals seen on the band scope around 0230 UTC. I called twice: W5BE in EM16 (Ponca City, Oklahoma) came back and gave me a 5/7, then KE5JXC came back with a 5/5 from EL39 (Kaplan, Louisiana), a new one! I heard some partials after this, but nothing worked. On my end, signals were low but clean and clear - I gave 5/3s. I had the amp on with a kW going out to a seven element M2 Yagi antenna at 48 feet. I have never experienced F2, that I know of, on 6 meters.

"I have been checking DX Maps for the Es MUF display - some days there are many, many, Es shown, mostly low value - but some are going above 50 for short windows of time, and then back below it. Our winter Es may be more robust this year than in the past."

Patrick Dyer, WA5IYX, in EL09ql wrote (about 6 meter F2 propagation on November 9), "The unexpectedly high F2 MUF from a rather minor amount of geomagnetic activity at the right time of the year with enough solar flux gave perhaps the first morning 50-MHz paths from here to the Caribbean of this poor Cycle 24. (During the peaks of Cycle 21-23 such paths from North America during 'the seasons' were often near-daily events for some.) A Sept 2011 (magnetic-storm induced) event in the afternoon did drive the MUFs into Ch A2 NTSC video. See <http://www.youtube.com/watch?v=BBxYEQZJz0>.

"The video at <http://giro.uml.edu/IonogramMovies/> shows the 1600z Nov 9 foF2 for Austin, TX reaching near 15 MHz, falling back to 10 MHz within three hours while those at Boulder/Idaho never saw those enhanced levels (of course, high foF2s nearly overhead do me little good).

"I am a bit surprised that some North American transcontinental 6 meter F2 didn't occur during all this. From my 1988 notes of reports on the old 28.885-MHz net there were mid-November dates with the solar fluxes in the 150-180 range where 50-MHz F2 paths were reported from VE1/W1 to W6:

Nov 9, 2013, time is UTC

1518 39.600 police, US n.e. accents (and other unID 35s and 37s)

1530 33.420 WQIN663 FL Orlando (first assumed Es, but now I wonder !)

1537 50.115 FG8OJ Guadeloupe Island (2530.6 mi) <http://fg8oj.com/>

1542 50.120 P43A Aruba (2177.0 mi)

1546 55.250 NTSC Ch A2 video - assumed Es from Mexico (61.25, 67.25 also in) but with 50-MHz F2 going on I had no time to investigate it with TV tuner(s) - could have been mixed with F2 backscatter signals

1548 50.052 V44KAI/B St. Kitts (2413.9 mi)

1557 50.130 PJ4NX Bonaire (2284.3 mi)

1603 50.115 FM5AN Martinique (2589.9 mi)

1608 50.062 KP3FT/B PR Ponce (10 w beacon)

1613 50.113 NP3IR PR OROCOVIS (2176.6 mi) <http://www.np3ir.com>

50-MHz out c. 1625 - the rest of day was very antidimactic here

"The 50-MHz F2 to Puerto Rico is about as short as it usually gets in that direction from here (though I have had the Dominican Republic that way in the prior, better, Solar Cycles). The lack of any super strong 6m F2 backscatter on Nov 9 would imply that the MUF did not likely get into Ch A2 from here. It had been hoped that the enhanced F2 zone(s) would survive long enough to produce 50-MHz Pacific paths for here, but it all had quickly collapsed well before local noon for this area."

For more information concerning radio propagation, see the ARRL Technical Information Service 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>.

Instructions for starting or ending e-mail distribution of ARRL bulletins are at <http://arrl.org/bulletins>.

Sunspot numbers for November 14 through 20 were 234, 272, 213, 282, 144, 113, and 95, with a mean of 193.3. 10.7 cm flux was 175.8, 177.9, 174.5, 177, 163.3,

152.9, and 147, with a mean of 166.9. Estimated planetary A indices were 2, 8, 9, 6, 3, 3, and 4, with a mean of 5. Estimated mid-latitude A indices were 2, 6, 11, 5, 2, 3, and 3, with a mean of 4.6.

FUNcube-1 now on high power

When the **FUNcube-1** satellite was first launched it was in 'Safe Mode' with the beacon transmitting just 30 mW, it has since been commanded to 'Educational Mode' and is now running 300 mW

The Dnepr carrying FUNcube-1 and 18 other satellites carrying amateur radio payloads successfully launched at 07:10:11 UT on Thursday, November 21. Approximately 8 minutes later, FUNcube-1 was deployed from the upper stage of the Dnepr rocket.

About 10 minutes after separation, telemetry was successfully received and decoded using the Dashboard App, and uploaded to the data warehouse by **ZS1LS** (at 07:37) and **ZS6BMN** in South Africa. There was a huge cheer at Bletchley Park and the FUNcube-1 Project team toasted the successful launch .

All main parameters on FUNcube look nominal; temp, battery voltage, solar panel charging rate, etc and the data received so far is available in the Data Warehouse. The team are already seeing some superb examples of the data that will be fundamental to the educational aspect of FUNcube – thank you to all stations around the world for your efforts so far.



The first signals from FUNcube-1 were heard in the UK on the first visible pass at 3 degrees above the horizon and **Mike Willis, GOMJW**, became the first UK station to receive and decode the telemetry from FUNcube-1 – congratulations Mike.

For the first two orbits FUNcube-1 was in Safe Mode with the beacon transmitting low power just 30 mW. FUNcube-1 was then commanded into Educational Mode which increased the power to 300 mW. This enabled it to be copied on a SSB handheld with whip antenna.

The FUNcube team are delighted to be able to release the formal email received at the Bletchley Park NRC monitoring station on the afternoon of Thursday, Novem-

ber 21, informing us that the FUNcube-1 spacecraft can now be referred to as AM-SAT-OSCAR-73 (**AO-73**).

Congratulations on the successful launch of the FUNcube-1 CubeSat, launched this morning from Yasny in Russia at 07:10:10.47 UTC November 21st 2013.

Since FUNcube-1 meets all of the requirements for being issued an OSCAR number, including coordination through IARU and requesting such a number; I, under authority vested in me by the President of AMSAT-NA, do hereby name FUNcube-1, "AMSAT- OSCAR-73" or "AO-73."

I, and all at AMSAT-NA wish AMSAT- OSCAR-73 great success in fulfilling all of its mission objectives and we welcome it to the long list of Amateur Radio satellites.

73,

*William (Bill) Tynan, W3XO
OSCAR Number Administrator*

The FUNcube team encourage all stations to continue to receive the telemetry and upload it to the Data Warehouse as we monitor the spacecraft and continue with the early operations tasks.

Download the FUNcube-1 Dashboard App

<http://funcube.org.uk/working-documents/funcube-telemetry-dashboard/>

FUNcube-1 Data Warehouse

<http://funcube.org.uk/ground-segment/the-data-warehouse/>

Mass Amateur Radio Satellite Launch November 21

<http://amsat-uk.org/2013/11/08/mass-amateur-radio-satellite-launch-november-21/>

Read the BBC story *Rocket deploys spacecraft armada* at

<http://www.bbc.co.uk/news/science-environment-25035490>

Story on NASA Space Flight

<http://www.nasaspacesflight.com/2013/11/russian-dnepr-record-breaking-32-satellite-haul/>

-SouthgateARC

Close Down of Channel 1 and Amateur use of 50 to 51 MHz

{This applies all of New Zealand, even though the upper North Island is the last to have Ch 1 shutdown at the end of November—editor}

Further to the item in InfoLine 260, the last Channel 1 Television transmitter is due to close down at the end of November and RSM has advised that from 6th December 2013 onwards (just in time for the annual VHF/UHF/SHF Field Day Contest) Amateurs throughout New Zealand will have access to the bottom end of the 6 metre band (50 to 51 MHz) without needing to apply for a permit.

Note that the management right under which the channel 1 television transmitters operated does not expire until August 2015 so 50 - 51 MHz can not appear on the Amateur General User Radio Licence until after this date. Instead RSM are putting in place licence No 4122 which will say that "Persons who hold a New Zealand General Amateur Operator's Certificate of Competency and a callsign issued pursuant to the Radiocommunications Regulations 2001 may operate an amateur radio station under this licence". The power on the licence will be 30 dBW (1 kW) to bring it into line with the power on the General User Radio Licence for Amateur Operators.

When Management Right 47 expires on the 30 August 2015, 50/51 MHz will be added to the General User Radio Licence for Amateur Operators.

-NZART InfoLine

{In summary, as of 6 Dec 2013, we will have the 50MHz to 51MHz portion of 6m back without the need of a special permit}

New Zealand to Australia contact via FUNcube-1

The first ZL-VK contact via **FUNcube-1** (AO-73) took place on November 23

The satellite's SSB/CW linear transponder was switched into Autonomous Mode during orbit 32 at 1113 UT on Saturday, November 23.

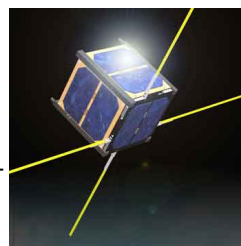
In this mode the transponder will automatically switch on when the spacecraft enters darkness, and switch off again when it enters sunlight.

Alan ZL2BX reported: *Transponder switched to eclipse mode OK about mid pass over ZL. Good signals from the transponder and had a brief contact with VK2MAL.*

Malcolm VK2MAL reported: *Good signals from AO-73 over VK tonight. Stations heard through the transponder were ZL2BX Alan and VK4CBW Wal.*

The FUNcube Team have had reports of an apparent distortion in the transmitted telemetry and difficulty in decoding around 12:00 UT November 23.

It is believed that this may have actually been occurring due to the natural phenomena of an active aurora rather than a problem on board the spacecraft. It is understood that another spacecraft had the same issues around the same time.



Analysis of the telemetry data from FUNcube-1 (AO-73) is continuing. Thank you to all stations who have provided telemetry so far. More telemetry data is needed to enable the FUNcube team to characterise the satellite.

The FUNcube Team encourage stations to download the [Dashboard software](#) to receive the telemetry and upload it to the [Data Warehouse](#).

FUNcube website <http://www.funcube.org.uk/>

First Transponder Test

<http://amsat-uk.org/2013/11/22/funcube-1-ao-73-transponder-tested/>

FUNcube-1 Deployed !!!

<http://amsat-uk.org/2013/11/21/funcube-1-deployed/>

BBC TV visit FUNcube station at RSGB National Radio Centre

<http://amsat-uk.org/2013/11/22/bbc-visit-funcube-station-at-rsgb-national-radio-centre/>

Adding new satellites to SatPC32 and Gpredict tracking software

<http://amsat-uk.org/2013/11/23/adding-new-satellites-to-satpc32/>

-SouthgateARC

Upcoming Happenings & Events

<i>Date</i>	<i>Happenings & Events</i>
1st December	KDMG Twin Sprint PSK & RTTY 80m
2nd December	HF Net, 3.575 MHz, 19:30
3rd December	VHF Net, 146.525 MHz, 20:00
6th December	NZART HQ Infoline
7th December	End-of-year Club BBQ
7-8 December	NZART Field Day Contest
9th December	HF Net, 3.575 MHz, 19:30
10th December	VHF Net, 146.525 MHz, 20:00
16th December	HF Net, 3.575 MHz, 19:30
17th December	VHF Net, 146.525 MHz, 20:00
20th December	NZART HQ Infoline
22nd December	NZART Official Broadcast
23rd December	HF Net, 3.575 MHz, 19:30
24th December	VHF Net, 146.525 MHz, 20:00
30th December	HF Net, 3.575 MHz, 19:30
31st December	VHF Net, 146.525 MHz, 20:00

15th January 2014—Social/Business/General club meeting
1-2 February 2014—NZART DX Weekend Contest
22 February 2014—Colville Connection (AREC)
22-23 February 2014—NZART JW Memorial Field Days
1st March 2014—Te Puke Junk Sale
5-6 April 2014—NZART Low Band Contest
17-18 May 2014—NZART Sangster Shield
7-8 June 2014—NZART Hibernation Contest
5-6 July 2014—NZART Memorial Contest
2-3 August 2014—NZART Brass Monkey Contest
4-5 October 2014—NZART Microwave Contest
2nd November 2014—NZART Straight Key Night
6-7 December 2014—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 2013	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	March 2014		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: With thanks to <http://www.zazzle.co.nz>

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