

# Ham Hum

May 2014



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



**Next Meeting :**  
**21st May—Remits (ZL1PK) and Cable**  
**termination (ZL1UJG)**

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## From the Editor

Note much to report this week. So I'll just give you a pic from Family Guy.



**Next Committee Meetings -  
7<sup>th</sup> May & 4<sup>th</sup> June**

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## **SB PROP ARL ARLP018**

### **ARLP018 Propagation de K7RA**

Solar and geomagnetic activity slackened over the past week, with average daily sunspot numbers declining from 202.7 to 73.4, and average daily solar flux dropping from 160.4 to 122.6.

The latest outlook has solar flux at 125 on May 2, 130 on May 3, 135 on May 4 to 6, 140 on May 7 to 9, 150 on May 10 to 13, 145 on May 14, 140 on May 15 to 17, 135 on May 18, 130 on May 19 and 20, and 125 on May 21. It then reaches a low of 115 on May 24 and 25, then bounces back to 140 on May 31, and looking way out, 184 on June 9. But June 9 is 37 days out, perhaps too far to rely on a forecast.

Predicted planetary A index is 5 on May 2, 8 on May 3 and 4, 5 on May 5 to 13, 10 and 8 on May 14 and 15, and 5 on May 16 to 20, 10 and 8 on May 21 and 22, 5 on May 23 to 25, and 8 on May 26 and 27.

With April now over, we can look at the 3-month moving average of daily sunspot numbers centered on March. Even with the softening of activity over the past week, the moving average is higher than ever for this solar cycle, demonstrating that this second (or third) peak is stronger than the first.

According to our moving average, the first peak was in the two 3-month periods centered on October and November 2011, when the average daily sunspot numbers were 118.8 and 118.6. There was another slightly weaker peak centered on April and May of 2013, at 106.4 in both periods.

The averages following that period, centered on June 2013 through March 2014 were 97.5, 85.6, 77.4, 91.2, 102.9, 123.7, 123.3, 138.5, 146.4 and 148.2. This includes daily sunspot data from May 1, 2013 through April 30, 2014. At the end of every month the most recent month of data is added in, and the data from four months back is dropped off, so we get a smoother set of numbers to look at. When you see those graphs of smoothed sunspot numbers, each point on the graph represents a year of data. The three-month moving average is a bit more responsive.

F. K. Janda, OK1HH predicts quiet geomagnetic conditions May 2, active to disturbed conditions May 3, quiet to unsettled May 4, quiet to active May 5, quiet on May 6, quiet to unsettled May 7, quiet May 8 and 9, active to disturbed May 10, quiet to active May 11 and 12, mostly quiet May 13 to 16, quiet to unsettled May 17 and 18, quiet to active May 19, mostly quiet May 20 and 21, quiet to active May 22 and 23, mostly quiet May 24, quiet May 25 to 27, quiet to unsettled May 28, and quiet to active May 29.

Jon Jones, N0JK notes that on May 1 there were interesting 6 meter e-skip and

TEP openings for both Europe and Eastern North America. "It looks like the Es-TEP was open from 2000 UTC to 2230 UTC May 1. I see VE1, VE9, W1, W2, W3, W8 and W9 spotted CE, LU and PY during that period on 6 meters. There were Es spotted from W1 to HI and KP4, and VP9 to W4. PY2AB worked W1AW/1 at 2046 UTC!!!

VE9DX AND PA2RU spotted the ZD8VHF/b at 2101 UTC. Open from Europe and the eastern USA and Canada to South Atlantic and America at the same time."

Robert Miles, K9IL of Martin, Tennessee says for a 30 meter beacon to check propagation, he likes to use a German RTTY station on 10.1005 MHz. When the signals are S9, he knows that propagation to Europe and sometimes long path to Japan should be good.

Bob Liddy, K8BL of Mentor, Ohio wrote on April 26:

"I had an experience with the 'Dead Band Syndrome' yesterday.

Since the beginning of the ARRL Centennial QSO Party, I've been on the WARC Bands looking for QSO Points and trying to finish up WAS on those 3 Bands. I'll often tune across these Bands and try to get an idea of what activity was taking place, if any.

On 4/25, I tuned across 12M and only heard a couple of weak signals, so I decided to roll the dice and see what might happen. At 2200Z, I put out a CQ on 12M CW using 400W and my homebrew 12/17 rotatable VEE dipole.

Little did I imagine that I'd be working WAC in less than 40 minutes by calling CQ on a seemingly Dead Band! At 2200Z, I was immediately called by ZL4PLM for Oceania. This was followed by NN4R at 2201 for North America, at 2203 by G7BXU for Europe, at 2212 by JJ1IRS for Asia, at 2220 by PY1CMT for South America and at 2239 by EA8YV for Africa. Also, HZ1BH/QRP called in at 2225Z for the other end of Asia!

The solar numbers at the time were SFI-125, A-9 and K-2. These didn't look like great DX numbers, but the stations were there and heard me well enough to answer my CQs. Working WAC on a supposedly 'Dead Band' in less than 40 minutes by calling CQ definitely amazed me! It makes me wonder what activity would be like if folks would give some Bands a try even though a quick scan turned up nothing."

Interesting, and good advice, Bob.

Dan Eskenazi, K7SS asked about the typical beam width of a coronal mass ejection. He was thinking about that monster flare on July 23, 2012 that fortunately missed us. I wrote about it in the ARLP012 bulletin (see <http://www.arll.org/w1aw-bulletins-archive/ARLP012/2014> ).

I suspected that CME beam widths vary quite a bit, and I put the question to a

couple of experts. Carl Luetzelschwab, K9LA mentioned an old Journal of Geophysical Research paper analyzing 241 CMEs from 1979 to 1981 (the peak of solar cycle 21) for angular span. They ranged from 2 degrees to over 120 degrees, with the average at 45 degrees, and median at 30 degrees.

Carl just sent me more information from an early 1980s analysis of 1209 CMEs, showing average angular width at 47 degrees, and median at 44 degrees.

Robert Steenburgh, KA8JBY is a NOAA Space Weather Forecaster, and he said that on July 23, 2012 there were three CMEs, "the largest had an angular width of 190 degrees, followed by a 132 degree event."

He referred me to Cactus, a system for computer aided CME tracking which analyzes data from LASCO, the "Large Angle and Spectrometric Coronagraph Experiment."

See <http://lasco-www.nrl.navy.mil/index.php> .

For information on Cactus, see <http://sidc.oma.be/cactus/> .

[http://sidc.oma.be/cactus/catalog/LASCO/2\\_5\\_0/2012/07/latestCMEs.html](http://sidc.oma.be/cactus/catalog/LASCO/2_5_0/2012/07/latestCMEs.html) has July 2012 data on CMEs, and this has a great deal of detailed information. Anything in color on this page is a clickable link to data on each CME, including a movie you can download. You can go to July 23 and watch the movies for each of the three CMEs on that date. As you will see, each of these were huge events. These were aimed directly at Earth's orbit, but Earth was not in position on that date. A few days difference (I don't know whether it was too early or too late) and our fragile electrical grid and vulnerable telecommunications infrastructure would have been in very deep trouble.

If you would like to make a comment or have a tip for our readers, email the author at,

[k7ra@arrl.net](mailto: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 April 24 through 30 were 71, 73, 46, 84, 79, 80, and 81, with a mean of 73.4. 10.7 cm flux was 130.1, 124.7, 120.7, 118.1, 120.8, 120.1, and

123.6, with a mean of 122.6. Estimated planetary A indices were 10, 9, 6, 4, 6, 6, and 18, with a mean of 8.4. Estimated mid-latitude A indices were 8, 7, 8, 4, 7, 7, and 12, with a mean of 7.6.

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## Branch 89 NZART

**Radio Electronics Group Inc**

### **Annual Equipment Sale Saturday 10th May 2014.**

**At the Glenview Club.**

211 Peacocks Road Glenview  
Hamilton

Doors for Public open 10am

**\$2 Lucky Ticket Entry**

Trade display – Refreshments – Door prizes

Plenty of parking,  
Motor Homes welcome,  
Easy access

**Vendor Tables available.**

**Vendor registration and enquires**

**Contact Trevor ZL4GJ**

**(07) 843 7365**

**(021) 177 5710 Or**

[trev99@vodafone.co.nz](mailto:trev99@vodafone.co.nz)

**Radio Electronics Group Inc**

[reg.zltre@gmail.com](mailto:reg.zltre@gmail.com)

## New Amateur Radio website

**Miles, VK6MAB**, has written to tell us about a new Amateur Radio website that he has just launched.

He says:

The purpose of it is to promote Amateur Radio as a hobby, without the usual technical mumbo jumbo and 'ham speak' that many other great websites have. I believe to convince others about our great interest, we need to approach it using plain language and positive words.

I've intentionally kept the website clutter-free, and have weekly posts scheduled for the next few months, covering the basics of equipment, operating, licensing and why AR is such an interesting hobby to consider.

Anyway, I am reaching out, because I would appreciate any exposure your readers could give other non-hams, who may be interested in joining the ranks of us licensed operators.

The URL is [www.enjoyhamradio.com](http://www.enjoyhamradio.com) - if you have any feedback, I'm all ears as well!

73 & BR

**Miles VK6MAB**

<http://www.vk6mab.com>

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## NARC Project

The Napier Amateur Radio Club has developed a Club Project which is now available to all ZL amateurs and dubs.

This dual band 2m – 70cm base station antenna kit comes with all parts and instructions and may be constructed in an hour.

Details, photos and how to order are at <http://www.zl2gt.com/blog/922/the-q-vhfuhf-antenna-project/>

Many thanks.

Lee ZL2AL

On behalf Napier Amateur Radio Club



## KickSat Deployed In Low-Earth Orbit:

Zac Manchester, KD2BHC, of the KickSat <http://www.kickstarter.com/projects/zacination/kicksat-your-personal-spacecraft-in-space/posts> project, reports the satellite launched successfully April 18 at 1925 UTC and successfully attained low-Earth orbit.

"We at Cornell and several Amateur Radio operators around the world have made contact with the spacecraft, and it is alive and well," Manchester said.

The Cornell grad student has announced <http://www.kickstarter.com/projects/zacination/kicksat-your-personal-spacecraft-in-space/posts> that he will offer prizes to the first several people who receive telemetry packets from KickSat as well as the first few who receive signals from the tiny Sprite satellites that KickSat will deploy in early May.

After a launch delay, KickSat went into space with the third SpaceX ISS resupply mission. Next month the 3U KickSat CubeSat will release more than 100 Sprite satellites -- each about the size of a small cracker -- into orbit. They will become the smallest Earth-orbiting satellites ever.

The KickSat beacon (437.505 MHz and 2401-2436.2 MHz) will transmit telemetry packets with information such as battery charge state, temperature, and Sprite deployment status. Packets will be transmitted every 30 seconds when the satellite is powered on, and every 250 seconds when it is in charging mode. All of the Sprites will be on the same frequency -- 437.240 MHz.

### Source:

The ARRL Letter

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## IARU Region 3 Newsletter

The April edition of the IARU Region 3 (Asia-Pacific) Newsletter has been released

The newsletter highlights the third meeting of the cycle of Asia-Pacific preparatory work for the World Radiocommunications Conference WRC-15 which will be held in Brisbane, Australia from June 9-13.

The key item on the agenda (item 1.4) that concerns amateur radio is seeking some "Secondary" access to frequencies in the vicinity of 5.3 MHz. They say much more support is needed from "medium sized" Region 3 member societies to work closely

with their administrations to put in an "Input document".

With regard to Emergency Communications the newsletter says "*Some member societies don't encourage those prepared or willing to play a role. Other areas have few radio amateurs and leave disasters to others.*"

Download the newsletter from

<http://www.iaru-r3.org/newsite/wp-content/uploads/2014/04/r3nl-14-04.pdf>

IARU Region 3

<http://www.iaru-r3.org/>

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## Listening to radio without a speaker?

While this may not be a surprise to those with electrical engineering backgrounds, this is a first for me — never seen this sort of thing before. While the effect is very cool, it's potentially very dangerous and you shouldn't go jumping the fence at the neighborhood 50kW shortwave station to try it out.

Wikipedia on [plasma speakers](#):

**Plasma speakers** are a form of [loudspeaker](#) which varies air pressure via a high-energy electrical [plasma](#) instead of a solid [diaphragm](#). Connected to the output of an [audio amplifier](#), plasma speakers vary the size of a plasma [glow discharge](#), [corona discharge](#) or [electric arc](#) which then acts as a massless radiating element, creating the [compression waves](#) in air that listeners perceive as [sound](#). The technique is an evolution of [William Duddell](#)'s "singing arc" of 1900, and an innovation related to [ion thruster](#) spacecraft propulsion.

The effect takes advantage of two unique principles. Firstly, [ionization](#) of gases causes their [electrical resistance](#) to drop significantly, making them extremely efficient [conductors](#), which allows them to vibrate sympathetically with [magnetic fields](#). Secondly, the involved plasma, itself a field of [ions](#), has a relatively negligible mass. Thus as current frequency varies, more-resistant air remains mechanically coupled with and is driven by vibration of the more conductive and essentially massless plasma, radiating a potentially ideal reproduction of the sound source.

After doing some looking around, I realize that I've seen a similar phenomenon in the past while visiting the Boston Museum of Science — the [singing Tesla coil](#)! Here is a fun example: [https://www.youtube.com/watch?feature=player\\_embedded&v=bbLshnfu0wY](https://www.youtube.com/watch?feature=player_embedded&v=bbLshnfu0wY)

## Interference from old television signal amplifiers

*{lifted from a previous issue of Rotorua (Br33) Electronic Newsletter—with thanks to their editor Ian ZL1TXZ for a wonderful mag}*

**Interference from old television signal amplifiers** are becoming a concern for sources of radio spectrum pollution as highlighted by a recent case of interference to aeronautical channels. New Zealand's Radio Spectrum Management (RSM) service reports: Reports of aeronautical interference experienced by national and international flights led to the discovery of an old analogue television signal distribution amplifier radiating on aircraft frequencies. The amplifier had been installed to boost weak television signals. The owner subsequently installed a satellite television receiver and had forgotten to turn the unused analogue television amplifier off. The aging amplifier had become unstable, resulting in spurious signals being radiated on aeronautical frequencies. As the country is migrating to digital television services there is a danger of old television signal amplifiers being left turned on and then forgotten. These amplifiers can be installed as distribution amplifiers behind a television receiver or above the ceiling, or masthead amplifiers fixed directly onto the television antenna. It is good practice to remove all of an old television antenna system at the time it is being replaced. If you are unsure whether your old aerial system includes an amplifier or not, have your local aerial installer give you advice. For more information on reception problems, see: <http://www.rsm.govt.nz/cms/consumers/reception-problems>

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### Ham Humour:

You can get further with a kind word and a linear than you can with just a kind word!

"I am often asked how radio works. Well, you see, wire telegraphy is like a very long cat. You yank his tail in New York and he meows in Los Angeles. Do you understand this? Now, radio is exactly the same, except that there is no cat." Attributed to Albert Einstein.

**Foliage:** Damp vegetation that cuts down on your signal.

**Integrated Circuit:** You have the only one in existence. This theory will be borne out when you try to obtain a replacement.

**Mast:** A device guaranteed to cause TVI for at least a mile, even when surmounted by nothing more than a white painted wooden broom handle.



**1st June—NZART Conference Broadcast**  
**6th June—NZART HQ-Infoline**  
**7-8 June—NZART Hibernation Contest**  
**18th June—Club General Meeting**  
**20th June—NZART HQ-Infoline**  
**29th June—NZART Official Broadcast**  
**4th July—NZART HQ-Infoline**  
**5-6 July—NZART Memorial Contest**  
**18th July—NZART HQ-Infoline**  
**27th July—NZART Official Broadcast**  
**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**  
**28 Feb/1 Mar 2015—NZART Jock White Memorial Field Days**

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

## AREC Event Operators Page

<b>WRC Rally NZ/ Possum Bourne Rally</b>	<b>June 2014</b>	<b>Organiser : ZL1BNQ</b>
Please contact the <a href="#">Section Leader</a> with your team information and he will pass it on to Auckland.		

<b>NZW SRA Bridge to Bridge Water-Ski Race</b>	<b>Nov 30—Dec 1 2014</b>	<b>Organiser : ZL2MGS</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>		
<b>I.</b>		
<b>J.</b>		
<b>K.</b>		
<b>L.</b>		

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](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:** Off air pending channel changes

*Cover Photo: For all those times I've heard a cat purring on air. <http://www.hamradiocats.com/>*

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