Ham Hum

August 2013

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

Hamilton Amateur Radio Club Inc.
Serving the Hamilton Community for over 80 Years
ZL1UX

Next Meeting :

Wed 21st August 7:30pm

Contact Details

Patron:			
Appointment pending			
President:			
"Jono" Jonassen	ZL1UPJ		zl1ux@nzart.org.nz
Vice Presidents:			
Gary Lodge	ZL1GA		
Gavin Petrie	ZL1GWP	843 0326	zl1gwp@nzart.org.nz
Secretary:			
Phil King	ZL1PK	847 1320	zl1pk@nzart.org.nz
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Deputy Section Leaders:			
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Treasurer:			
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Colin McEwen	ZL2CMC		
Cameron Mumford	ZL1CNM		
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Club Custodian:			
Currently vacant			
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QSL Manager:			
Sutton Burtenshaw	ZL4QJ	856 3832	suttonb@slingshot.co.nz
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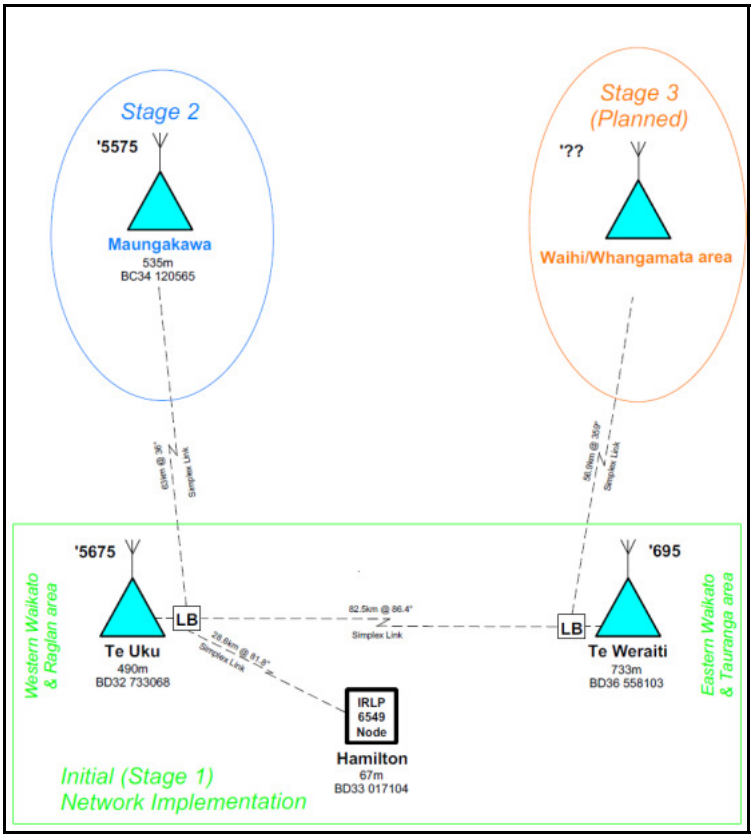
2m net—Phil King	ZL1PK	847 1320	zl1pk@nzart.org.nz
NZART Examiners:	ZL1IC, ZL1PK & ZL1TJA		

From the Editor

The Hamilton Markey Day is this month. Saturday 17th August at the Table Tennis Clubrooms on Edgecumbe St.

As a followup to Ian's talk last month about the WaiPlenty system. Be sure to choose the correct frequency for your location. For the majority of Hamilton that will be 145.675 MHz located at Te Uku (near Raglan). The eastern edge of Hamilton may be better off using 146.950 MHz located at Te Weraiti on the Kaimai's.



Next Committee Meetings - 3rd July & 7th August

Propagation de K7RA
27 July, 2013
ARLP030

At 2330 UTC on July 24, Australia's IPS Radio and Space services issued a geomagnetic disturbance warning. Increased geomagnetic activity is expected due to a coronal mass ejection. They predict quiet to unsettled conditions on July 25, active to minor storm on July 26, and active conditions on July 27.

As this bulletin nears release early Friday morning, the planetary A index was 4 on four recent readings, followed by 2 on the last one. But the mid-latitude K index was 4 on three recent readings, then 5 on the last two. Geomagnetic activity is increasing, as expected.

Over the past reporting week, compared to the previous period (July 11 to 17) average daily sunspot numbers decreased by less than four points to 73.4, while average daily solar flux declined slightly more than three points to 110.6.

NOAA/USAF predicts Planetary A Index at 18 on July 26, 12 on July 27, 8 on July 28, 5 on July 29 to 31, 8 on August 1, 5 on August 2 to 8, 8 on August 9 to 11, 5 on August 12 and 13, 8 on August 14 and 15, 5 on August 16 and 17, 10 on August 18, 15 on August 19 to 22, and then 8, 5 and 8 on August 23 to 25.

The outlook for solar flux calls for 105 on July 26 and 27, then 110, 115, 120, 125, 130, 135, 130, 125, 120, 125, 120 and 125 on July 28 through August 8, 120 on August 9 to 12, 115 on August 13, 120 on August 14 to 17, 125 on August 18, 120 on August 19 and 20, and 125 on August 21 to 23. The latest projection shows a short term solar flux peak at 135 on September 4 and 5 after a minimum of 100 on August 27 and 28.

OK1MGW from the Czech Propagation Interest Group sees quiet to active geomagnetic conditions on July 26 and 27, quiet to unsettled July 28 and 29, quiet on July 30 and 31, quiet to unsettled August 1, quiet to active August 2, active to disturbed August 3, quiet August 4, mostly quiet August 5, active to disturbed August 6 and 7, quiet to unsettled August 8 to 11, quiet August 12 and 13, quiet to active August 14 and 15, and quiet to unsettled August 16 and 17.

Juan Carlos, CO8TW lives in Santiago de Cuba, about 600 miles southeast of Havana. He put up a new propagation web site that has many useful features and an interesting mix of information. Check it out at http://www.qsl.net/co8tw/pro.htm.

Another interesting propagation page I ran across recently is at http://qrzcq.com/page/propagation.

G4CJC has a 10 meter report at http://www.southgatearc.org/bands/10metres/.

The NOAA/NWS Space Weather Prediction center has a Facebook page at https://www.facebook.com/pages/NOAA-NWS-Space-Weather-Prediction-Center/232532740131296.

Note the July 16 article about the K index,and a map of North America showing how high the planetary K index has to be in order to see aurora borealis from any location. For my location near Puget Sound, it seems to say a K index at 8 or higher would be good. But for Northern Minnesota and North Dakota a K index of only 4 seems adequate. Of course on Facebook is the always timely and useful page from NW7US titled "Space Weather and Radio Resources at HFRadio.org", at https://www.facebook.com/pages/NOAA-NWS-Space-Weather-Prediction-Center/232532740131296.

David Moore sent an interesting article from The Guardian about the Met Office now offering coverage of space weather. Met originally was short for meteorological but now is the official name for the British weather and climate service. Read it at http://www.guardian.co.uk/news/2013/jul/23/met-office-space-weather-forecasting.

There also is yet another article about the current solar cycle being the weakest in the past 100 years, this time from Sky and Telescope: http://www.skyandtelescope.com/news/The-Weakest-Solar-Cycle-in-100-Years-216752671.html.

Jeff Hartley, N8II of Shepherdstown, West Virginia wrote in response to the comment last week about the lack of 6 meter openings into DM04. Jeff is in FM19, and wrote on July 20, "It has not been a good Es season from here, but we have had several multi-hop openings since July 1 mostly out into Arizona and New Mexico along with one to Oregon, Washington, and VE7. Only once did I catch Europe and it was only to France and Portugal. So, I am not too surprised that many are disappointed with their 6 meter openings this year. Even the 20 meter E-skip is much less frequent than normal this year."

"Today, July 20 there was a Russian sponsored contest and in a few short minutes I heard/worked strong stations from HS, YD, BH8, UN, and UA9 on 15 meter CW around 1245Z. This was the best shape in which I have heard 15 in some time."

On July 19, Jon Pollock, K0ZN of De Soto, Kansas wrote, "Even though sunspot numbers have been modest, I was on last night (July 18) between about 0130-0330 UTC (on 17 meters) and from my QTH in Eastern Kansas I worked several stations in the Central Pacific including E51AND in the Cook Islands and some

ZL's, all on CW and with decent (but not strong) signals. Interestingly, on both ends of these QSO's we were running high power into basic unity gain antennas and only netted about S-5 signals, so path loss was moderately high. But, the bottom line is, 18 MHz was open into the Pacific from Kansas well into the late evening. I still find that if 17 meters sounds 'dead' with low noise, it is usually open with very long skip and the main problem is a lack of activity, not a lack of propagation."

Good point, Jon. You can also listen for beacons if you suspect a quiet band is not actually dead (or make some calls.), or get a trial account at QupNow (see http://qupnow.com/) and click on HF Availability. This relies on up-to-the-minute global measurements of TEC (Total Electron Content in the ionosphere), and allows you to test propagation on any path, but only for the current time. It shows the relative signal strength all long that path, from your QTH to the target location and continuing on out the other side over the great circle route. Note that it also works on 160 meters. You can either enter coordinates for both locations, or it may be more convenient to use the grid square entry method.

Don May, N5DN of Houston, Texas pointed out that on July 25,

Spaceweather.com ran an article about the weak solar cycle titled "Underwhelming". "Kinda makes a DXer want to cry.", weeps Don, and we can all certainly empathize. But, there is still room for hope.

The article also said, "Solar physicist Dean Pesnell of the Goddard Space Flight Center thinks Solar Cycle 24 is double peaked--and the second peak is yet to come." If you can't find the article and accompanying graphic, go to http://www.spaceweather.com/ and enter July 25 in the Archives drop-downs in the upper right.

Chip Margelli, K7JA of Garden Grove, California (DM03) wrote "Although 6 meters has been terrible this year, I did just work KH6HME (KH7Y operating) on 144.276.5 MHz on SSB and CW. Fred started at 5x1 and came up to about 5x5. Time was 1857 UTC on 25 July. Good to hear Fred activating Paul Lieb's memorial callsign."

Chip notes that Fred was running 80 watts and an 8 element Yagi from Mauna Loa. Chip was running 100 watts using a TS-2000 and an 8 element LFA Yagi ten feet above his roof.

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 email distribution of ARRL bulletins are at http://arrl.org/bulletins.

Sunspot numbers for July 18 through 24 were 112, 94, 57, 49, 53, 84, and 65, with a mean of 73.4. 10.7 cm flux was 114.8, 113.6, 112.5, 109.4, 109.9, 106.7, and 107.6, with a mean of 110.6. Estimated planetary A indices were 15, 14, 6, 5, 6, 5, and 5, with a mean of 8. Estimated mid-latitude A indices were 16, 13, 6, 4, 6, 5, and 6, with a mean of 8.

MARKET DAY:

Waikato Table Tennis Stadium

Edgecumbe Street

Hamilton

Saturday, 17th August, 2013

Selling commences at 10am

WaiPlenty Repeater Network – '695 "outage"

'695 (Te Weraiti) was locked out of service over-night on Wednesday 24 July 2013, and didn't return again until Friday morning 26 July, denying all use of that repeater. This was **not due to a network fault**, but somebody leaving their rig transmitting for over 24 hours! Both '5675 (Te Uku) and '5575 (Maungakawa) continued operating along with IRLP access during that period.

All repeaters and links in the WaiPlenty network have Time-Out-Timers to protect against exactly this sort of issue. Should any of these repeaters be held up for more than ten minutes continuously, it shuts down until the signal holding it up ceases.

This raises a couple of points:

1. Virtually all rigs these days have **transmit timers** to limit the length of any single transmission, generally to about three minutes (often labelled 180 seconds in the set-up)[1],

and

2. What was an **unattended amateur transceiver** doing on the air for an extended period (can't comply with their licence conditions[2]).

As a responsible amateur, every operator is asked to check:

· Does your rig have a transmit timer, and is it enabled? It should be.

· While you're away from the rig for any extended period (eg; over-night, or away from home), you should switch your rig off.

Had this offending operator implemented either of these simple actions, '695 would have remained available, plus it would have avoided wasting trustee's and other people's time tracking down what caused this 'outage'. **Please, go check your rig now**.

It should be noted that the primary repeater for use around Hamilton is Te Uku '5675, for Tauranga is Te Weraiti '695 and for Hauraki Plains, Coromandel Peninsula (western side) is Maungakawa '5575.

Refer to http://www.zl1is.info/img/WaiPlenty-Coverage2a.gif for coverage maps of nodes in the network.

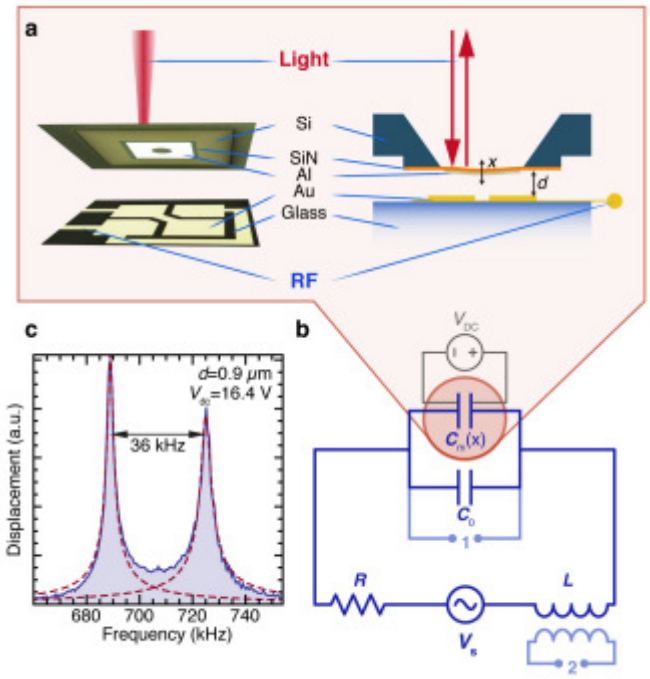
Further information can be found at the Waikato VHF Group (Branch 81) website at http://www.zl1is.info

- ZL1TAT (with extra from ZL1IS web site)

Physicists Detect Radio Waves With Light

By bouncing light off a vibrating nanomembrane, researchers can now detect radio waves in an entirely new way

The detection of weak radio signals is a ubiquitous problem in the modern world. Everything from NMR imaging and radio astronomy to navigation and communication depends on picking up faint radio signals that would have been undetectable just a few decades ago.



That's why many groups are racing to find better ways to spot these signals and to process them using state-of-the-art techniques.

Today, Tolga Bagci at the University of Copenhagen in Denmark and a group of pals demonstrate a device that detects ultra-weak radio waves in an entirely new way. Their new box of tricks converts radio waves into light signals, which can then be transmitted and analysed using standard optical tools. "Our work introduces an entirely new approach to all-optical, ultralow-noise detection of classical electronic signals," they say.

The new approach is simple in principle. Their device consists of a thin membrane of silicon nitride coated with a mirror-like layer of aluminium. This nanomembrane is suspended above an electrode forming a capacitor which is itself part of a standard LC-circuit that picks up radio waves at its resonant frequency.

When this happens, the resonating circuit causes the nanomembrane to vibrate.

The trick that Bagci and co have pulled off is to bounce a laser beam off the nanomembrane causing an optical phase shift that they then measure using standard optical techniques.

The result is that the nanomembrane converts the faint radio waves it picks up into optical signals.

This approach has significant advantages over traditional radio receivers. The big problem with current methods for detecting faint radio waves is that noise generated by heat can swamp the signal. The only way to get around this is by cooling the detection equipment, a process that significantly increases the complexity, size and cost of the job.

The big advantage of converting the radio signals into a resonant mechanical vibration is that the random effect of heat becomes negligible. That's the beauty of resonant systems. So the reflected light picks out the radio signal with little of the noise that swamps conventional radio receivers.

The numbers are impressive. The new device has a room temperature sensitivity of 5 picoVolts per (Hz)^1/2 at a frequency of 1 Mhz. In other words, it does the same job at room temperature that physicists could only dream of doing at the temperature of liquid helium.

And this is only a proof of principle device. It has the potential to get even better with a little optimisation

That's likely to have a significant impact in a number of areas that rely on cooled amplifiers to pick up faint radio signals. For example, nuclear magnetic resonance imaging relies on the detection of faint radio signals generated by protons precessing in a magnetic field. And radio astronomers rely on cooled amplifiers to pick up the faintest radio signals in the cosmos. "The usually required cryogenically cooled pre-amplifiers might be replaced by our transducer," say Bagci and co.

That should significantly simplify this kind of work. Looking further ahead, there's no reason why this kind of approach might not have even broader application, perhaps for ordinary mobile phone communication and for navigation. The ability to detect fainter signals could make these devices smaller and less power hungry.

And who doesn't need smaller, less power-hungry gear?

Ref: arxiv.org/abs/1307.3467: Optical Detection Of Radio Waves Through A Nanomechanical Transducer

-MIT Technology Review

ZLD Commemorative Activity

Branch 86 plan to commemorate the 20th anniversary of the closure of ZLD . An invitation is extended for all former staff at the station to pay us a visit on Sunday September 29th for a look at the present day setup. Please contact Ann Walker ZL1BFB at zl1bfb@xtra.co.nz or by mail at P.O. Box 163060 Lynfield, Auckland, 1443 if interested. It would be appreciated if this message could be passed on to former staff who may be interested but do not have access to Infoline.

Thanks

Ann Walker ZL1BFB

Branch 86

Upcoming Happenings & Events

Date	*Happenings & Events*
2nd August	**NZART HQ Infoline**
3rd August	**Waitakere Sprints CW**
3-4 August	**NZART Brass Monkey Contest**
5th August	HF Net, 3.575 MHz, 19:30
6th August	VHF Net, 146.525 MHz, 20:00
12th August	HF Net, 3.575 MHz, 19:30
13th August	VHF Net, 146.525 MHz, 20:00
16th August	**NZART HQ Infoline**
17th August	**Hamilton Market Day**
19th August	HF Net, 3.575 MHz, 19:30
20th August	VHF Net, 146.525 MHz, 20:00
21st August	**Club General Meeting**
25th August	**NZART Official Broadcast**
26th August	HF Net, 3.575 MHz, 19:30
27th August	VHF Net, 146.525 MHz, 20:00

2nd September—NZART Doug Gorman Memorial Frequency Measurement Contest

6th September—NZART HQ Infoline

18th September—Club General Meeting

20th September—NZART HQ Infoline

29th September—NZART Official Broadcast

5-6 October—NZART Microwave Contest

7th September—SPAM Nostalgia Night

5th October—NZART/WIA Oceania Contest SSB

12th October—NZART/WIA Oceania Contest CW

2nd November—Western Suburbs Junk Sale

3rd November—ZL1AIH Straight Key Night

30 Nov-1 Dec—Bridge to Bridge Water Ski Classic (AREC)

1st December—KDMG Twin Sprint PSK & RTTY 80m

7-8 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 2013	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 : ZL1UPJ

Position		Saturday Operator	Sunday Operator
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 2013	Organiser : ZL1IC

Position	Operator
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

Position	Primary Operator	Secondary Operator	Other Operator
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.zl1ux.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 Repeaters:	146.675MHz -600kHz split 438.725MHz -5 MHz split
ATV Repeater:	Off air pending channel changes

Cover Photo: Italian 2000 lire (approx 1 euro) featuring Marconi on one side and his yacht, Glace Bay radio towers and telegraph on the other side.

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