Ham Hum

October 2013

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

Next Meeting :

16th October : 7:30pm

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NZART Examiners:	ZL1IC, ZL1PK & ZL1TJA		

From the Editor

As a result of the talk from ZL1BPU, I got hold of a SDR USB stick (dongle RT-2832 & R820T) from Trade Me. It seems that at least a couple of people are importing them into NZ. It works really well, as long as you follow the directions carefully. My biggest problem was working out the connectors to get a PL-259 (HF dipole) connected to the little MCX connector on the stick. Still need to sort out the N-Connector from my V/U dual-bander, but that can wait for now.

The annual Bridge to Bridge is coming up at the end of November. We need volunteers for both Saturday and Sunday mainly for Hamilton to Taupiri, along with coverage on Sunday afternoon for Cambridge all the way to Taupiri. VHF on our STSP mainly, and possibly some UHF. Contact ZL1UPJ if you are interested in helping.

Next Committee Meetings - 2nd October & 6th November

SB PROP ARL ARLP039
ARLP039 Propagation de K7RA

Our sun is still very quiet, but solar flux and sunspot numbers were higher this week than last. Average daily sunspot numbers rose from 42.3 to 75.6, and average daily solar flux rose from 95.3 to 109.6. There were no big geomagnetic events this week.

Predicted solar flux is 110 on September 27 through October 2, then 105, 100, 95, 100, 105 and 100 on October 3-8, 95 on October 9-10, then 100, 105 and 100 on October 11-13, 95 on October 14-15, and all the way down to 90 on October 16-19.

Predicted planetary A index is 5 on September 27-28, then 8, 10, 12 and 8 on September 29 through October 2, 5 on October 3-9, 8 on October 10-11, 5 on October 12-13, then 8, 10 and 8 on October 14-16, and 5 on October 17-19. This is unchanged from the forecast in Thursday's ARRL Letter.

F.K. Janda, OK1HH of the Czech Propagation Interest Group predicts active to disturbed conditions September 27, quiet to active September 28, mostly quiet September 29, quiet on September 30, quiet to active October 1, quiet October 2-5, quiet to unsettled October 6-7, mostly quiet October 8, back to active to disturbed conditions October 9, as it was on the first day of this forecast.

David Moore, a shortwave listener in Moro Bay, California is a frequent contributor here, and sends a New York Times article titled "The Sun That Did Not Roar", about our current quiet sun. In reference to a weak solar event last week, it characterized a CME as what "seemed like the halfhearted effort of a slacker star." See it at http://nyti.ms/1fd48GT .

But 160 meter operators are not despairing a dearth of solar activity to come, as more solar activity correlates with higher geomagnetic activity, and they like things nice and quiet.

Often the declining years of a solar cycle are marked by heightened geomagnetic activity (see http://www.spacew.com/gic/guidance.pdf for a treatise on this) and I can recall times during the decline of cycle 22 in the 1990s when it seemed like geomagnetic disturbances were constant. Although the record in its most easily accessible form doesn't go back as far as we would like, check out this geomagnetic index record from 1994:

http://www.swpc.noaa.gov/ftpdir/indices/old_indices/1994_DGD.txt

Check out February 5-15, February 21-22, March 3, March 7-21, April 1-18 (especially April 17, with a huge planetary A index of 130!), May 1-17, May 28-31,

Jun 25 to July 7, September 7-10, October 3-7, 23-24, and 29-31, and November 26-27. Note the very large planetary A index values throughout the year, and this represents week after week buffeted by high absorption and even radio blackouts. As if this wasn't bad enough in the middle latitudes, I recall Vince Van Der Hyde, K7VV was living in Alaska at the time (possibly near the 65th parallel) and told me later that his favorite HF bands were unusable for months at a time, due to the concentration of geomagnetic energy toward the poles.

In the table above, check out the College A index, which is measured near Fairbanks at the University of Alaska. It is in the middle column. See all those asterisks where there should be numerals? Those are periods when the magnetometer was unusable due to being swamped with too much energy from a coronal mass ejection, for instance. Now compare the numbers in 1994 to more recent readings:

http://www.swpc.noaa.gov/ftpdir/indices/old_indices/2012_DGD.txt

http://www.swpc.noaa.gov/ftpdir/latest/DGD.txt

There are a few relatively high numbers, but nothing like what we observed and sometimes suffered with two decades ago.

A glance at this graph shows how far down we were on cycle 22 during 1994:

http://standeyo.com/Geo_Solar/Solar_Cycles_22_23/cycle_22_review_01.gif

By the way, the exact location for the magnetometer which generates the college A and K index is at 64.8742 degrees North latitude and 147.8597 degrees West longitude, roughly one half mile northeast of Smith Lake, 400 yards south of Yankovich Road, and one half mile east of Miller Hill Road in Fairbanks. This is about 117 miles or 188 km south of the Arctic Circle.

You can see photos of the geomagnetic observatory at http://geomag.usgs.gov/monitoring/observatories/college/#photos and also at http://www.bing.com/maps/default.aspx?cp=64.8742|-147.8597style=hlvl=17

Note on the overhead view on Bing Maps you can zoom in, and by clicking on Aerial, then the Bird's Eye dropdown you can see highly detailed images from four different directions. Just click on the arrows outside the compass rose in the upper right to see the observatory from a point of view in each direction.

Dave Greer, N4KZ of Frankfort, Kentucky wrote about 10 meter openings on the autumnal equinox, last Sunday.

"Ten meters was open to southern Europe and South Africa on the morning of September 22, the first day of fall. For the past couple of weeks, various European operators had been telling me on lower bands after I got home from work that 10 meters had been open to the States earlier in the day. But I was at work in each instance and missed out. So I made an effort on Sept. 22 to be on the band

and it didn't disappoint. I copied numerous stations but primarily they were from France and Spain. I copied a British station but he was weak. I worked S58WW at 1510 UTC and he had a good signal but not as strong as others. CU7MD from Azores was copied too but with several prior QSOs in our logs, I let others work him. ZS3Y from South Africa had a big signal as did EA8YB in the Canary Islands. But I passed on them as well because of our previous QSOs on the band."

"But my most interesting QSO on Sept. 22 was with F4DSD in France. I think they call this the 10-meter deja vu mode of propagation because Mario and I had worked exactly one year earlier. And I do mean almost exactly a year ago. Our two QSOs, both on 10 meters on Sept. 22, occurred in 2012 and again in 2013 and were only 12 minutes apart in time and only 5 KHz apart in frequency. Now that really is deja vu!"

Thanks, Dave. That really must have been an odd feeling and quite a fun topic of conversation.

You may be surprised to hear of 10 meter openings given the paucity of sunspots, but given seasonal variations, right around the equinox is the ideal time. Run a projection with a program such as W6ELprop from Dave's location (38.205 deg N, 84.896 deg W) to France, for instance, and on September 22 with low sunspot or solar flux numbers, we can see some possibilities for openings around 1530-2100 UTC, and especially between 1900-2030 UTC. But change the date back or forward a month or two, and the opening disappears.

More mail on 10 meters, from Rol Anders, K3RA in Elkridge, Maryland: "Ten has been opening to EU from Maryland more and more, starting in mid September. I worked IW1CHX on September 11 at 1438 UTC on CW. The KD4D team at N3HBX worked 54 EU stations on Sunday of the WAE (Worked All Europe DX Contest) on September 15. Then on September 17 I ran about 15 EU stations between 1600 and 1700 UTC. I was not on for several days, but on September 23 I worked about 25 EU stations on ten meters from 1440-1520 UTC. On September 24 I worked about a dozen EU's in the hour starting at 1640 UTC. Then on September 25 I worked about 100 EU stations between 1300-1600 UTC. On September 26 I worked about 125 EU between 1200-1440 UTC. Many Eastern Europeans and Russians, with occasional Asiatic Russian and Middle-East stations calling in. Also on September 26, with such good conditions in the morning, I checked ten meters for JA's before my sunset, and worked JM7OLW. So, the fall ten meter season is well underway. Station is a 3 element SteppIR at 50 feet, and about 900 watts out."

Great report, Rol. And a little bit of internet searching shows JM7OLW may have been using his 7 element 10 meter Yagi at 100 feet. That must help. Check out the evidence and maybe guess which antenna at http://www.geocities.jp/jm7olw_suke/ . I wouldn't be surprised if he were using a half-wave dipole on his roof.

At the last minute, early Friday, we received this VHF report from Lawrence, GJ3RAX, in Jersey, one of the Channel Islands. He wrote, "The VHF bands over here were a bit more interesting this week. A tropo opening had been predicted due to the high pressure region and that happened on Monday. I was not able to spend very much time on the radio but I was on for an hour or so during the early afternoon and again from 11:30 pm at night. My afternoon QSOs were into Germany at distances of between 600 and 700 miles. Most were on 2 m and one on 70 cm. The later QSOs got me into Germany again on 2 m and 70 cm and also Switzerland on both bands which was about 440 miles. I tried with some of them on 23 cm but nothing was heard this time."

"One of my friends in Guernsey said that he had a large pileup on 23 cm with quite a lot of countries worked. He has a tower with much higher gain antennas than my log periodic and a better take-off to the east where I am looking at the local school building which is about 100 yards away."

"One of the members of the VHF and UHF group said that he was too far north, being in Scotland, to be able to take advantage of that opening which seemed to be mostly at my latitude."

"On Tuesday I was not hearing anything on those bands. During the evening there was an RSGB contest on 6 m which ran from 8 pm to 10:30 pm BST. Normally I would be lucky to get a couple of QSOs but, after starting late at 9 pm, I had 17 QSOs. Most were to England with one GW, one GJ and two in GU. The best distance was 299 miles which is normally not a good distance for me on 6 m. Typical 6 m QSOs are much closer or much more distant during the Sporadic E season but that is now over."

"I am anticipating more and better tropo openings during the next month as I used to find them best during October each year. Last year when I had just got back on those bands in November I caught one opening when I worked into Germany on 2 m, 70 cm and 23 cm."

This weekend is the CQ World Wide RTTY DX Contest. They have a nice countdown clock along with rules at http://www.cqwwrtty.com/. As I write this early Friday morning, the clock shows the contest starts in 16 hours.

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 September 19 through 25 were 85, 85, 79, 98, 65, 56, and 61, with a mean of 75.6. 10.7 cm flux was 107.9, 108.8, 110.3, 111.2, 107.8, 110.2, and 111.1, with a mean of 109.6. Estimated planetary A indices were 11, 6, 7, 5, 5, 9, and 4, with a mean of 6.7. Estimated mid-latitude A indices were 14, 5, 8, 6, 4, 9, and 4, with a mean of 7.1.

ARISS Looks Forward to Installation of "Ham Video" on Space Station

The Amateur Radio on the International Space Station (**ARISS**) program is hoping its "Ham Video" digital television transmitter, now stowed onboard the International Space Station (ISS), will be installed and commissioned this fall. US Astronaut Mike Hopkins, KF5LJG, who heads into space September 25, is scheduled to handle the tasks involved with getting the S Band Ham Video DATV setup on the air from the ISS Columbus Laboratory. The project has a low priority, however, and it could be a while before live digital TV images show up from the ISS. According to **ARISS-EU** Chairman Gaston Bertels, ON4WF, live commissioning will take place in stages, each during a full pass of the ISS over the Italian Space Agency's Very Long Baseline Interferometry station near Matera in southern Italy. That station will be used to receive the DATV signal from the ISS.

"It is not yet known if these passes will be chosen in close succession, or if they will cover several weeks," Bertels said in a recent Ham Video update. ARISS has proposed that the European Space Agency (**ESA**) transmit over all continents, with the camera turned off between commissioning passes. The camera operates from batteries, and having to service it could require a prohibitive amount of crew time, always at a premium.

"During commissioning activities, the astronaut will activate the Ham Video transmitter with the camera live in all possible configurations — two antennas, four frequencies and two symbol rates," Bertels told ARRL. "This will be done during three or four passes of the ISS over southern Italy, where the operating ground station is located."

Bertels said the transmitter typically would be activated only during passes over the ground station and shut down after each activity. "What we are asking ESA to do is to leave the transmitter on, without camera, *between* commissioning passes," he said. "Once commissioning is complete, the Ham Video transmitter will be shut

down, and how it's used after that is still under discussion.

A blank signal contains everything ground stations need to set up and fine tune reception, Bertels said. Data collected will be used to study the performance the ARISS L/S band antennas, now installed on Columbus, as well as to evaluate the global system.

Ham Video Wants You!

ARISS is calling on members of the Amateur Radio community, especially those interested in space communication, to collaborate on the project, and Bertels said several satellite operators already have shown interest. Ham Video technical characteristics are available on the **ARISS-EU** website at the "Ham Video" link in the left sidebar.

Among the components of a satellite ground station, the antenna system is the most expensive. High-gain antennas equipped with azimuth/elevation capability and driven by an appropriate computer program are necessary. "For Ham Video reception, a 1.2 meter dish with precision tracking is recommended," Bertels said. Properly equipped stations should be able to receive from 3 to 4 minutes of video on a given ISS pass. But even stations with simpler equipment may be able to gather useful data. Chained stations will be needed for ARISS Ham Video school contacts, although that prospect is still in the future at this point.

ARISS-EU says a "simple station" might consist of a **helix-fed parabola dish;** a low-noise downconverter (such as a High Sierra Microwave **Model 2400**, Kuhne Electronic **KU LNC 23 TM**, or Ali Express **HD LNBF**); a DVB-S receiver on a computer card (such as the **Techno Trend S2-1600**), and the free ***Tutioune*** software developed by Jean Pierre Courjaud, F6DZP.

With this setup, Ham Video from the ISS can be received, decoded and viewed on a computer display. The *Tutioune* software graphically displays received signal characteristics and can save data to a file for forwarding to ARISS for analysis.

Dry Run Tests Successful

An Ham Video experiment sequence test (EST) was carried out in late August, and simulation tests were completed early this month. The EST consisted of a series of ground station tests using IK1SLD in northern Italy. A very low power transmitter installed in the shack, transmitted a DATV recording on the Ham Video frequencies. IK1SLD received and decoded the signal and streamed it on the web.

ESA's Belgian User Support and Operations Center (**BUSOC**) and the European Astronaut Center (**EAC**) in Germany also conducted tests from **Kayser Italia**'s laboratory, where an engineering model Ham Video unit is operational. Kayser Italia manufactured the Ham Video unit. IK1SLD and IØKPT produced, received and streamed signals to the web using various configurations.

For the simulations BUSOC supervised from Brussels and ARISS participants IØKPT and F6DZP operated from home. The simulations were done in the Columbus mockup at the EAC, where a nonoperational Ham Video model was installed for astronaut training. Ham Video transmissions were simulated at different frequencies and symbol rates, and video was streamed to the web from the Columbus mockup.

Four "passes" were simulated, using both ARISS antennas. One major goal of the simulations was to check the efficiency of communications between ground and "crew." The simulations were considered a success, and lessons were learned for gaining time in transmitting commands. This is important, considering the 8 minute limit on contact time during real commissioning. —*ARISS-Europe Chair Gaston Bertels, ON4WF*

Introducing Yaesu 'System Fusion':

Yaesu's complete System Fusion C4FM / FDMA Amateur Radio Digital Communication System was introducing to North America ham radio operators yesterday late afternoon at the 32nd Annual ARRL and TAPR Digital Communications Conference in Seattle, Washington.

Yaesu's FT 1DR Handheld and FTM 400DR mobile digital and analog dual band transceivers, already available, were discussed as well as a new key system components, the new DR-1 Dual Mode Repeater.

This conference is an international forum for radio amateurs to meet, publish their work, and present new ideas and techniques.

Presenters and attendees have the opportunity to exchange ideas and learn about recent hardware and software advances, theories, experimental results, and practical applications.

Attendees frequently are Amateur Radio individuals experimenting at the very leading edge of the kinds of new technology that keeps Amateur Radio constantly moving forward.

It was our intent to show our respect to these individuals by launching the new Yaesu System Fusion C4FM / FDMA Amateur Radio digital communication system during their proceedings.

Yaesu encourage all interest parties to download the attached Yaesu Product Bulletin as well as our new System Fusion Product Brochure to acquaint themselves with its full capabilities.

We are certain that many will applaud the fact that System Fusion is “FM Friendly” meaning both Analog and C4FM Digital users can share one repeater and communicate with each other.

With this one hugely important feature, Yaesu has shown their deep appreciation for their customers who for years and years have purchased their VHF and UHF Conventional FM Analog products.

Yaesu’s System Fusion provides an opportunity for a smooth transition to Digital for hams choosing to make that change without having to lose contact with their friends who may not be making the change at the same.

Yaesu will release additional purchasing and availability information to their North American Dealers in the next few weeks.

We fully expect there to be a large number of System Fusion repeaters on-the air-widely serving the Amateur Radio community by year’s end!

Please join us as we celebrate this very important day in Amateur Radio history!

Thank you.

Best regards,

Dennis Motschenbacher K7BV
Executive Vice President Amateur Radio Sales

Upcoming Happenings & Events

Date	*Happenings & Events*
1st October	VHF Net, 146.525 MHz, 20:00
4th October	**NZART HQ Infoline**
5-6 October	**NZART Microwave Contest**
5th October	**NZART/WIA Oceania Contest SSB**
7th October	HF Net, 3.575 MHz, 19:30
8th October	VHF Net, 146.525 MHz, 20:00
12th October	**NZART/WIA Oceania Contest CW**
14th October	HF Net, 3.575 MHz, 19:30
15th October	VHF Net, 146.525 MHz, 20:00
16th October	**Club General Meeting**
18th October	**NZART HQ Infoline**
21st October	HF Net, 3.575 MHz, 19:30
22nd October	VHF Net, 146.525 MHz, 20:00
27th October	**NZART Official Broadcast**
28th October	HF Net, 3.575 MHz, 19:30
29th October	VHF Net, 146.525 MHz, 20:00

1st November—NZART HQ Infoline

2nd November—Western Suburbs Junk Sale

3rd November—ZL1AIH Straight Key Night

15th November—NZART HQ Infoline

20th November—Club General Meeting

24th November—NZART Official Broadcast

24 Nov-1 Dec—WARO YL Activity Week

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

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

6th December—NZART HQ Infoline

7-8 December—NZART Field Day Contest

20th December—NZART HQ Infoline

22nd December—NZART Official Broadcast

22-23 February 2014—NZART JW Memorial Field Days

17-18 May 2014—NZART Sangster Shield

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 : 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 2014	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: Radio station of ZL1NZ. See http://radio1nz.com/

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