Ham Hum

May 2018

Hamilton Amateur
Radio Club Inc.
Serving the Hamilton
Community for over 90 Years

ZL1UX

Next Meeting

16th May : 7:30pm

Remits and Sam on his kitset

Contact Details

Patron:
Russell Richardson ZL1RWR
President:
"Jono" Jonassen ZL1UPJ zl1ux@nzart.org.nz
Secretary:
Phil King ZL1PK 847 1320 zl1pk@nzart.org.nz
AREC Section Leader:
Brett Pascoe ZL1FPG
Deputy Section Leader:
Phil King ZL1PK 847 1320 zl1pk@nzart.org.nz
Treasurer:
Tom Powell ZL1TJA zl1tja@nzart.org.nz
Committee:
Brett Pascoe ZL1FPG
Gary Lodge ZL1GA
Gavin Petrie ZL1GWP 843 0326 zl1gwp@nzart.org.nz
Mike Sanders ZL2MGS 855 1612 zl2mgs@nzart.org.nz
Robin Holdsworth ZL1IC 855 4786
Sam Birch ZL1OBI
Terry O'Loan ZL1TNO
Ham Hum Editor:
David King ZL1DGK 07 884 9590 zl1dgk@nzart.org.nz
Ham Hum Printer:
John Nicholson ZL1AUB 855 5435
ATV Co-ordinators:
Phil King ZL1PK 847 1320 zl1pk@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 zl1gwp@nzart.org.nz
Club Custodian:
Currently vacant
QSL Manager:
Gary Lodge ZL1GA
Net Controllers:
80m net—Phil King ZL1PK 847 1320 zl1pk@nzart.org.nz
2m net—Phil King ZL1PK 847 1320 zl1pk@nzart.org.nz
NZART Examiners: ZL1GWP, ZL1IC, ZL1PK & ZL1TJA

From the Editor

If you use any repeaters or beacons belonging to the Waikato VHF Group, you are welcome to help keep them running by sponsoring them. See http://www.zl1is.info/sites.html for more details.

Propagation de K7RA

5 May, 2018

Sunspots disappeared again this week, with a blank Sun on April 28, and continuing on every day since.

Average daily sunspot numbers dropped from 20 to 3.6, while average daily solar flux decreased from 73.4 to 69.3. Average daily planetary A index declined from 11.9 to 4.4 and average mid-latitude A index went from 8.6 to 5.

Predicted solar flux is 67 on May 4-5, 68 on May 6, 69 on May 7-10, 68 on May 11-13, 70 on May 14-28, 68 on May 29 through June 9, and 70 on June 10-17.

Predicted planetary A index is 5 on May 4-5, then 18, 22, 16, 12 and 8 on May 6-10, 5 on May 11-16, then 42, 12 and 8 on May 17-19, 5 on May 20 through June 1, then 8, 15, 12, 10 and 8 on June 2-6, 5 on June 7-12, then 42, 12, and 8 on June 13-15 and 5 on June 16-17.

F.K. Janda, OK1HH of the Czech Propagation Interested Group has been compiling this weekly forecast since 1978.
"Geomagnetic activity forecast for the period May 4-29, 2018
"Geomagnetic field will be:
Quiet on May 23-26, 28-29
Mostly quiet on May 14, 16, 21-22, 27
Quiet to unsettled on May 4, 11-13, 19-20 Quiet to active on May 5, 8-10, 15, (18)
Active to disturbed on May (6-7,) 17
"Solar wind will intensify on May 5-7, (8-11,) 17-18, (19-20, 26-27) "Remark:
- Parenthesis means lower probability of activity enhancement.
- With regard to ongoing changes, current forecasts are continuing to be less reliable."

Thanks to British ham Max White, M0VNG and others for alerting us to the recent buzz about the current solar cycle perhaps reaching a minimum sooner than predicted: https://bit.ly/2HN8fdn

Consensus seemed to place the approaching solar minimum around two years from now in 2020, but recent trends suggest the minimum may appear sooner. Does this mean the turnaround and following increase may also come sooner than previously anticipated?

K9LA has info on this:
http://k9la.us/May18_Solar_Minimum_and_Spotless_Days.pdf
http://k9la.us/html/monthly_feature.html

New from Dr. Tamitha Skov: https://youtu.be/ylecUN5LgYA - On the Ledge About Stealthy Solar Storms

"Dear Tad,

"Sometimes I wish I had started this Space Weather Woman thing a decade ago. That way I would be able to do a direct comparison with how things were during our last solar minimum in 2008. But then I realize, I wouldn't have had the benefit of you giving me timely reports from your local areas on social media. I wouldn't have heard you talking about the impacts you were experiencing during these solar events. This reminds me how grateful I am to all of you today.
If it weren't for you, I would never know the extent to which Space Weather affects our everyday lives.

"This brings me to this week's forecast video. I am still shaking my head that we managed to miss a stealthy solar storm that brought aurora clear down to Illinois, USA. Guaranteed, national grids were on high alert as we crossed through the G2-level storm threshold.
The irony that this stealthy solar storm occurred while we convened a workshop on how to predict them is not lost on me. In fact, it's kind of a cosmic cattle prod. If we can experience such a strong solar storm that surprised us all--so near solar minimum--what does that say about our forecasting ability?

"I hope events like these serve as a wakeup call to us scientists, forecasters, and meteorologists alike. Although this week the Earth-facing side of the Sun is reasonably quiet, I will take this moment to reflect on all the work we have yet to do. In fact, that's exactly what I was doing while sitting on my window ledge during my last night in Switzerland (see the picture above). I was reflecting.
Thanks so much for reminding me how important all of this is.
"Cheers,
"Tamitha"

Ever seen this?
https://ham.stackexchange.com/

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 at http://arrl.org/propagation-of-rf-signals.

For an explanation of 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://

.

Sunspot numbers for April 26 through May 2, 2018 were 14, 11, 0, 0, 0, 0, and 0, with a mean of 3.6. 10.7 cm flux was 69.4, 68.7, 70.2, 71.1, 70.2, 68.4, and 67.1, with a mean of 69.3. Estimated planetary A indices were 4, 6, 4, 4, 6, 3, and 4, with a mean of 4.4. Estimated mid-latitude A indices were 4, 5, 5, 3, 10, 3, and 5, with a mean of 5.

The ESA just discovered a second magnetic field surrounding our planet

A trio of satellites studying our planet's magnetic field have shown details of the steady swell of a magnetic field produced by the ocean's tides.

Four years of data collected by the European Space Agency's (ESA) Swarm mission have contributed to the mapping of this 'other' magnetic field, one that could help us build better models around global warming.

Physicist Nils Olsen from the Technical University of Denmark presented the surprising results at this year's European Geosciences Union meeting in Vienna, explaining how his team of researchers managed to detail such a faint signature.

"It's a really tiny magnetic field," Olsen told BBC correspondent Jonathan Amos. "It's about 2 – 2.5 nanotesla at satellite altitude, which is about 20,000 times weaker than Earth's global magnetic field."

On a fundamental level, both fields are the result of a dynamo effect produced by charged particles being sloshed around in a fluid.

The stronger magnetic field that tugs on our compass needle forms from the steady movement of molten rock deep under our feet.

This field also leaves its signature in the alignment of particles embedded in Earth's crust, a pattern that has also been analysed in detail by Swarm

Read the full story at:
https://www.sciencealert.com/esa-swarm-satellite-map-ocean-tides-magnetic-field

- Our thanks to **Stephen, G7VFY** for spotting this item

WINDOWS 10 – THE SERIAL KILLER by Ian Jackson, VK3BUF

Serial Ports

If you are not interested in using digital transmitter/receiver modes on your PC, then "***this is not the article you are looking for, move along…***"

Otherwise, if you are tempted to have a go at some digital modes like **Packet, WSPR,** or **FT8** the chances are that you will require a fully functional **Serial RS232** port to make the application work, even though nowadays few PC's come equipped with one of these ports. Also, it's likely that your PC has come with, or upgraded to, **Windows 10**. This creates fresh problems.

So probably you think, ok, I just need to buy one of those cheap USB to RS232 adapters, stick it in a vacant USB hole in the back of the PC or notebook and away we go. The problem is that 90% of these adapters use a '**Prolific**' brand chipset inside the dongle. In the past, you inserted the appropriate driver CD that comes with the adapter, then it is set up to work as say COM2 or COM4 and away you go. About $15-20 from Radio Parts or Jaycar will get you one.

Unfortunately, while the Prolific serial chips will work under Windows XP, Vista, Windows 7 & 8, **they won't work under Windows 10**. The Comm Port settings in the Device Manager area will have a permanent exclamation mark next to it that won't go away.

Setting compatibility modes won't help. Windows 10 just refuses to talk to the appropriate driver. The Prolific company who created the chipset have given up, saying they won't produce a Windows 10 driver or a future Windows 10 compatible product. This makes most of the USB-RS232 adaptors in circulation permanently incompatible.

The solution is to use a different USB dongle with a chipset made by **FTDI** (Future Technology Devices International) or **Silabs** and *NOT* by Prolific. They are harder to find and they are usually twice the price than the Prolific versions, but they will work on Windows 10.

Windows 10 incompatibility is only part of the story, as the Prolific chips also have buffering and handshaking line issues that are sometimes problematic on the earlier operating systems. For reliable comms, it's best to avoid these cheaper adapters. You can waste a lot of time with them

Here is one which is obtainable from Radio Parts in Melbourne that works really well. It is made by **IOCrest** in Shenzhen, China. These supprt RS232 and RS485, with bonus LED indicators to show data traffic. (An description of RS422 is at the end of this article)

When Radio Parts had no stock of these, I was able to buy them directly from the factory in China for about $40 each, but freight from there is expensive, so buy local if you can.

There is an alternative from Jaycar which looks like it has the good Windows 10 compatible chipset that is worthwhile trying (below), but it is a new product and I have not tried one out yet.

Installing the IOCrest Adapter

Buying these FTDI adapters is one thing. Getting them to work is another. Take it out of the box and plug it into your Windows 10 pc. The screen will grind for a while then it will tell you that the best driver for the job is now installed. All lies. You will need to delete the driver that Windows provided and force the PC to use the one that comes on a small CD with the adaptor.

Under the folder **1411\Windows XP,Vista, 7,8,10\EXE**\ is a file to execute called "**xrusbser_ver2200_installer.EXE** Run this file to install your driver. If you now go to Control Panel and select Device Manager, scroll down the list until you see **Ports (COM & LPT)** Next to this it should say: **XR21B1411 USB UART (COMnn)** where '**nn**' is the communications port that was allocated to the device, such as **Com3** or **Com4**.

Sometimes the pc will automatically allocate something unusual like **Com19**, which is a problem if your application only allows connections to say **Com1** to **Com4**, but this can be fixed in Device Manager by opening the comm port driver window and selecting the Port Settings tab, then 'Advanced' . Here there is a drop box where you can force the pc to use a different comm. Port designation such as the more common **Com3** or **Com4**. If it says that this port is in use, it may be lying, so select that port anyway and give it a try.

Configuring the adaptor

You may think that it is all good to go now, but wait, there's more! These USB adaptors support both **RS232** and **RS422** standards. We want **RS232**, but **RS422** is the default standard and we have to change it. Back on the CD that came with the adapter there is a sub-folder called **Tool.** In that folder there are two exe files and we want to run the one called **ComConfig_EN.exe** (The English version) This is a little utility to configure the adaptor to the necessary standard. A window pops up which asks for three items to be entered. For **Port Num**, select the active com port from the lis. For **Interface** select **RS232** For **Term** select **Enable**. Then click on Apply. If all went well you should get the message "**Configuration succeeded**" Now (finally!) you have a viable RS232 port to work with

What is RS422?

It is sometimes difficult to find out about this RS422 standard is, or its close relative RS485.

As far as the computer or microprocessor is concerned, it wants its data to be 0-5V logic, but at baud rates of 9600 baud and above, the range is only a few metres.

The common RS232 protocol is an improvement where the transmission signal is converted to data on a single wire relative to a common ground where each bit of information alternates between +9V and –9V. This alternating voltage polarity fights rounding of the data waveform by cable capacitance. Doing this will extend a 9600 baud data stream to 40-50 metres in a wire.

Sometimes 40-50 metres is not enough, particularly where environments are noisy or data has to be sent across the width of a factory site. **RS232** signals are sent on un-balanced wires, which still limits the working range. Here is where the **RS422** standard is useful.

RS422 has two wires twisted together in a cable isolated from a grounded shield. A constant current of a few milliamps flows through the two wires as a loop. The polarity of the **RS422** current loop reverses with every bit in the data stream. Like telephone lines, balanced transmission lines carrying data solve a lot of signalling problems.

Being current based, it has high noise immunity. A 9600 baud data stream can be sent successfully for hundreds of metres.

RS485 is similar to the **RS422** except that it has a bit more drive current and can support many more slave devices on the current loops.

More of an industrial thing really.

3Y0I Bouvet Island DXpedition news

(Update/Need Ops!).

The following was announced/posted on the 3Y0I Web page:

After receiving absolutely no single word of reply to our invitation from the 3Y0Z organizers (we leave that for your own judgement), an important decision has been taken by our team.

We're now open for applications to join the **3Y0I Bouvet Island Expedition**.

A full inspection of the expedition vessel by the team in person is planned after our trip to Pacific. There are 2 reasons to do so. We wish to avoid any circumstances that wouldn't allow us to put 3Y0I on the air and we also wish to reduce spendings

to minimum. Thanks to proper planning, total cost of the expedition is already much lower than any other similar venture announced recently. More savings to come after the inspection...

Our main gear container is already on route to South Africa, where our journey to Bouvet will begin from.
As said before, we invite experienced operators to join efforts to activate the 2nd most wanted entity during Antarctic summer.

More details available on request by email at: dom@rebeldxgroup.com.
Don't forget to attach your ham radio CV and to ask your boss for 1 month+ vacations.

https://bouvetoya.org/

Cuba's 'Operation Meteor' will involve ham radio

Cuba has launched '**Operation Meteor**' to aid the island in preparing for any and all possible natural disasters, from droughts to hurricanes and earthquakes

Cuba is introducing the preventative initiative on May 19 and 20, Chief of the National General Staff of Civil Defense Ramon Pardo Guerra said during Friday's press conference.

Among the new strategies under review for implementation are civilian first-aid training; assist and rescue missions; damage control; large-scale needs assessment, and office reception for victims in disaster situations.

The nationwide initiative aims to mitigate the impact of natural disasters, especially in rural areas, and safeguard life on the island, Lieutenant Colonel Wilfredo Cobas said. The operation is of special importance considering the coming hurricane season from June 1 to November 30.

'Meteor' will also connect with radio and television services; the island communications system, and the Emergency Network of the **Amateur Radio Federation of Cuba** to fine-tune their emergency responses.

Read the full story at
https://www.telesurtv.net/english/news/Cuba-Launches-Operation-Meteor-to-Mitigate-Natural-Disasters-20180505-0024.html

Federación de Radioaficionados de Cuba (FRC)
https://www.frcuba.cu/

Custom chips as a service

Ages ago, making a custom circuit board was hard. Either you had to go buy some traces at Radio Shack, or you spent a boatload of money talking to a board house. Now, PCBs are so cheap, I'm considering tiling my bathroom with them.

Today, making a custom chip is horrifically expensive. You can theoretically make a transistor at home, but anything more demands quartz tube heaters and hydrofluoric acid. Custom ASICs are just out of reach for the home hacker, unless you're siphoning money off of some crypto Ponzi scheme.

Now things may be changing. Costs are coming down, the software toolchain is getting there, and Onchip, the makers of an Open Source 32-bit microcontroller are now working on what can only be called a, 'OSH Park for silicon'. They're calling it **Itsy-Chipsy**, and it's promising to bring you your own chip for as low as $100.

The inspiration for this business plan comes from services like MOSIS that allows university classes to design their own chips on multi-project wafers. This aggregates multiple chips onto one wafer, bringing the cost of a prototype down from tens of thousands of dollars to about five thousand dollars, or somewhere around a thousand dollars a chip.

Itsy-Chipsy is taking this batch processing one step further. This is a platform that combines multiple projects on one die. That thousand dollar chip is now sixteen different projects, tied together with regulators, current sources, clocks, and process monitors. Using a 2 mm by 2 mm chip size, Itsy-Chipsy gives chip designers 350 μm of silicon using a 180 nm CMOS process. That's enough for a basic 32-bit RISC-V microprocessor in a QFN or DIP 40 for just one hundred dollars.

This project is a contender for The Hackaday Prize — the Prize ends in November and we'd be amazed to see results by then. The Onchip team is talking to foundries, though, and it looks like there's interest for this model in the industry. We'd guess that the best case scenario is a crowdfunding campaign for an OSH Park-like chip fab sometime in 2019. Whenever it comes, this is something we're eagerly awaiting.

https://hackaday.com/2018/04/24/custom-chips-as-a-service/

Radio hams involved in nuclear plant emergency exercise

The *Herald-Palladium* reports Southwest Michigan emergency response agencies have passed a test of their ability to respond to a simulated nuclear accident at Palisades nuclear power plant

A response drill in southwest Michigan was well received by the US agencies of the Nuclear Regulatory Commission (NRC) and the Federal Emergency Management Agency (FEMA).

Emergency service agencies plus schools, public health, amateur radio operators, Palisades, WCXT radio, the American Red Cross and others from Van Buren, Berrien and Allegan counties took part.

Read the full story at
http://www.heraldpalladium.com/news/local/fema-and-nrc-like-local-palisades-response/article_a7e76ace-94f8-5dcf-b11c-e72131208d97.html

Article spotted by VA7MPG
http://va7mpg.ca/?p=27999

Costa Rica radio hams agreement with Fire Department

A Memorandum of Understanding was signed May 2, 2018, in San José, Costa Rica between **Radio Club de Costa Rica** (RCCR) and the Fire Department of Costa Rica to support the development of the 'ITU Winlink Node Project' in Costa Rica

Witnesses of honor of this MoU were Edwin Estrada Hernandez, Telecommunications Vice-Minister of Costa Rica (MICITT), and Elian Villegas Valverde, Executive President of the Board of Directors of the Fire Department of Costa Rica.

This project, supported by Radio Club de Costa Rica, is part of ITU's plan for the establishment of a Winlink node network in the Central American countries and

the Dominican Republic, with the objective of strengthening the response capacity in alternate emergency communications in case of emergency situations or disasters that could occur in these countries.

Source IARU Region 2
http://iaru-r2.org/

There is only one
NEW ZEALAND ASSOCIATION
of
RADIO TRANSMITTERS.
It serves you at
local, national and international
levels.
It deserves our full support
if we are to continue to have
the frequencies and operating privileges
we currently enjoy.

The Association
is what you and I make it.

Upcoming Happenings & Events

Date	Happenings & Events
1st May	VHF Net, 146.525 MHz, 20:00
4th May	**NZART HQ Infoline**
7th May	HF Net, 3.575 MHz, 19:30
8th May	VHF Net, 146.525 MHz, 20:00
14th May	HF Net, 3.575 MHz, 19:30
15th May	VHF Net, 146.525 MHz, 20:00
16th May	**Club Meeting**
18th May	**NZART HQ Infoline**
19th May	**Sangster Shield**
21st May	HF Net, 3.575 MHz, 19:30
22nd May	VHF Net, 146.525 MHz, 20:00
27th May	**NZART Official Broadcast**
28th May	HF Net, 3.575 MHz, 19:30
29th May	VHF Net, 146.525 MHz, 20:00

1st June—NZART HQ Infoline

9-10 June—NZART Hibernation Contest

15th June—NZART HQ Infoline

24th June—NZART Official Broadcast

6th July—NZART HQ Infoline

20th July—NZART HQ Infoline

29th July—NZART Official Broadcast

4-5 August—NZART Brass Monkey Contest

6-7 October—NZART Microwave Contest

1-2 December—NZART Field Day Contest

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

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:	**3.580 temporarily (**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: Mt Te Aroha tower and trig.

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