

The Official Newsletter of the

PAPAKURA RADIO CLUB INC.

January 2024



New Year - New Chances



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On a break for January

No Formal meetings, Just catch ups at the clubrooms

6625 Nets will continue each Sunday at 8:30am

This Month's Meeting:

There are no Formal meetings in January, The next formal meeting will be on the first Wednesday of February – Wednesday 7th of February.

If transport is a problem, let the committee members know, and we may be able to assist with arranging a ride for you.

Dates: Wednesday nights – No Formal Meetings, but members still gather at the clubrooms to socialise.

CLUB ACTIVITY:

Most club Members are taking a well deserved break we look forward to seeing you all again in February.



DX CALENDAR JANUARY 2024



Featured DX

VP9KF BERMUDA ISLANDS

Paul, EI6LC will be active as VP9KF from Bermuda Islands, IOTA NA - 005, 8 - 22 January 2024. He will operate on HF Bands CW only. Recent DX Spots **VP9KF** QSL only direct to: Paul Evans, c/o Ashley Lodge, Tagoat Co., Wexford, Ireland.

J79AN Dominica Island

David, F8AAN will be active as J79AN from Dominica Island, IOTA NA - 101, 17 - 24 January 2024. He will operate on HF Bands, CW, SSB, Digital modes.

The Commonwealth of Dominica is an island nation in the eastern Caribbean, which has become one of the main tourist destinations in the region due to its rich natural resources. At the same time, Dominica is the Antilles' most mountainous and inaccessible island. Due to its remote geographical location, it was colonised much later than the neighbouring atolls. Unlike the other Antilles, Dominica has been fortunate to escape the ruthless economic exploitation of its lands. There have never been large-scale plantations here, and the island itself was favoured by runaway slaves, the Maroons. Only here the hand of European justice could not reach them.



It is worth mentioning that in August 2015, the Caribbean islands were hit by Tropical Storm Erika, which was devastating in its destructive power. Dominica was unlucky enough to be at the very epicentre of the raging natural disaster, as a result of which almost all settlements on the atoll were wiped off the face of the earth. According to the Prime Minister of the Republic, the island's economic development has been set back 20 years and the country's agriculture and industry will have to be rebuilt virtually from scratch.

UPCOMING CONTESTS

	Start -	Fini	sh					
Dat	e-Time	Date	e-Time	Bands	Contest Name	Mode	Exchange	Sponsor's Website
1	0000	1	0100	3.5	AGB New Year Snowball Contest	CW Ph Dig	RST, serial, mbr (if any)	www.qsl.net/eu1eu/agb_nysb.htm
1	0000	1	0100	1.8-28	K1USN Slow Speed Test	CW	Max. 20 WPM; name, SPC	www.k1usn.com/sst.html
1	0800	1	1100	3.5,7	SARTG New Year RTTY Contest	Dig	RST, serial, happy new year (native language)	www.sartg.com/contest/nyrules.htm
1	0900	1	1200	3.5-14	AGCW Happy New Year Contest	CW	RST, serial, mbr (if any)	www.agcw.de/contest/hnyc/hnyc-engl
1	1400	1	1800	144,432	AGCW VHF/UHF Contest	CW	RST, serial, pwr class, 6-char grid	www.agcw.de/contest/vhf-uhf
2	0200	2	0400	3.5-28	ARS Spartan Sprint	CW	RST, SPC, pwr	arsqrp.blogspot.com
3	0200	3	0330	7	QRP Fox Hunt	CW	RST, SPC, name, pwr	www.qrpfoxhunt.org
3	1300	3	1400	1.8-28	CWops Test (CWT)	CW	Name, SPC or mbr	cwops.org/cwops-tests
3	1700	3	2100	144	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	www.ft8activity.eu/index.php/en
3	2000	3	2100	3.5	UKEICC 8-Meter Contest	Ph	6-char grid square	www.ukeicc.com/80m-rules.php
4	0000	5	0300	7	Walk for the Bacon QRP Contest	CW	Max. 13 WPM; RST, SPC, name, mbr or pwr	qrpcontest.com/pigwalk40
4	1800	4	2200	28	NRAU 10-Meter Activity Contest	CW Ph Dig	RS(T), 6-char grid square	nrau.net/nrau-contests-in-general
4	2000	4	2200	1.8-28,50	SKCC Sprint Europe	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
5	0200	5	0330	3.5	QRP Fox Hunt	CW	RST, SPC, name, pwr	www.grpfoxhunt.org
5	2000	5	2100	1.8-28	K1USN Slow Speed Test	CW	Max. 20 WPM; name, SPC	www.k1usn.com/sst.html
6	0000	6	2359	3.5-28	PODXS 070 Club PSKFest	Dig	RST, SPC	www.podxs070.com
6	0700	6	2100	3.5-14	Marconi Club ARI Loano QSO Party Day	CW	RST, serial, "MC" (if mbr)	www.ariloano.it/marconiclub
6	1200	7	1200	1.8-28	WW PMC Contest	CW Ph	RS(T), PMC abbrev or CQ zone	www.s59dcd.si
6	1300	6	1700	3.5,7	RSGB AFS Contest, CW	CW	RST, serial	www.rsqbcc.org
6	2000	7	0700	1.8	EUCW 160-Meter Contest	CW	RST, name, mbr or "NM"	www.eucw.org/eu160.html
8	0100	8	0300	1.8-28	4 States QRP Group Second Sunday Sprint	CW Ph	RS(T), SPC, mbr or pwr	www.4sqrp.com/SSS/sss_rules.pdf
10	1700	10	2100	432	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	www.ft8activity.eu
13	0000	13	2359	3.5-28	YB DX Contest	Ph	RS, serial	ybdxcontest.com
13	1200	14	1200	3.5-28	UBA PSK63 Prefix Contest	Dig	ON: RSQ, UBA section or serial (starting with 001)	www.uba.be
13	1200	14	2359	1.8-28,50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
14	0630	14	0830	3.5,7	NRAU-Baltic Contest, SSB	Ph	RST, serial, 2-letter fylke/län/province/ region	www.nraubaltic.eu
14	0900	14	1059	28	DARC 10-Meter Contest	CW Ph	RS(T), serial, DOK (if any)	www.darc.de/der-club/referate/ conteste
14	0900	14	1100	3.5,7	NRAU-Baltic Contest, CW	CW	RST, serial, 2-letter fylke/län/province/ region	www.nraubaltic.eu
17	1700	17	2100	1.2G	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	www.ft8activity.eu
18	0000	19	0300	14	Walk for the Bacon QRP Contest	CW	Max. 13 WPM; RST, SPC, name, mbr or pwr	qrpcontest.com/pigwalk20
18	0130	18	0330	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or pwr	naqcc.info
20	1200	21	1159	1.8-28	Hungarian DX Contest	CW Ph	RS(T), serial, 2-letter county (if HA)	ha-dx.com/en/contest-rules
20	1200	21	1159	3.5-28	PRO Digi Contest	Dig	RST, serial, "ME" (if mbr)	www.procontestclub.ro
20	1800	21	0559	1.8-28	NA Collegiate Championship, SSB	Ph	Name, SPC if NA	www.w9smc.com/nacc
20	2000	21	0559	1.8-7	Feld Hell Sprint	Dig	(See rules)	sites.google.com/site/feldhellclub
21	1300	21	1700	3.5,7	RSGB AFS Contest, Data	Dig	RST, serial	www.rsgbcc.org
21	2300	22	0100	1.8-28	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or pwr	qrpcontest.com/pigrun
24	0000	24	0200	1.8-28,50	SKCC Sprint	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
26	2200	28	2200	1.8	CQ 160-Meter Contest, CW	CW	RST, SP or CQ zone	www.cq160.com
27	0600	28	1800	3.5-28	REF Contest, CW	CW	RST, French dept or serial	concours.r-e-f.org/reglements
27	1200	28	1200	3.5-28	BARTG RTTY Sprint	Dig	Serial (no signal report)	bartg.org.uk
27	1300	27	1700	3.5,7	RSGB AFS Contest, SSB	Ph	RS, serial	www.rsgbcc.org
27	1300	28	1300	3.5-28	UBA DX Contest, SSB	Ph	RST, serial, section (if ON)	www.uba.be/en/hf/contest-rules
27	1900	28	1900	No WARC	Winter Field Day	CW Ph Dig	Category, ARRL Section, MX or DX	www.winterfieldday.com
31	2000	31	2100	3.5	UKEICC 80-Meter Contest	CW	6-char grid square	www.ukeicc.com

Note: All dates and times are in UTC, Mbr = Membership number. Serial = Sequential number of the contact. SPC = State, Province, DXCC Entity. XE = Mexican state.

JOCK WHITE FIELDAY

This annual contest is named to honour Jock White ZL2GX, NZART Contest and Awards Manager for over 40 years, for the service that he gave to NZART during that time.

This contest is primarily to test Branch organisation and weld a team of workers together. Your team can aim to be as competitive or as social as it likes, or all points in between. There is work for all: spouses/partners, prospective members etc.

The next Jock White Memorial Field Day contest will be held on Saturday/Sunday 24th & 25th February 2024

Papakura Radio club has a long history with this contest, and until last year held the Hastings Trophy, "phone only" award, in 2023 we came in second.

This year we would like to operate on both Bnds, but currently have only a single operator team, so we are looking for a second operator team, We should have enough radios to run the event, but may need a shelter for the second station.

If you are keen to know more or help, contact Gavin ZL1NUX, will be arranging this years event, and we will have a meeting of interested people in February. This is great chance to train the next team of HF operators for this event, so it does not matter how "Green" you may be, It's a great time to gain that HF ear.

DETAILS OF THE JOCK WHITE MEMORIAL FIELD DAY

1. AIMS and OBJECTIVES:

For NZART Branches and clubs (hereafter referred to as branches) to establish effective temporary HF radio stations, to work as many other New Zealand stations as possible and to learn to operate in an abnormal situation in less than optimal conditions.

Home stations can also participate but are strongly encouraged to make a minimum of either 50 phone and/or 20 CW contacts on 80m and/or 40m and submit logs.

2. WHEN:

The last full weekend in February each year: on Saturday 1500-2400 NZDT and Sunday 0600-1500 NZDT.

NOTE: when February only has three full weekends then field day will be held on Saturday 28th February and Sunday 1st March. This is to avoid a clash with the ARRL International CW contest. This will next occur in 2026.

3. BANDS, MODES and POWER:

40 and/or 80 metres, PHONE (SSB) and/or CW, 100 watts PEP maximum.

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Stations using two transmitters may operate simultaneously on both bands, however only one transmitter may be operated on a single band at a time. Single transmitter stations may operate on one or both bands.

4. SITES and SHELTERS:

Field station shelters may be one or more tents sited within 10 metres of each other and erected on the weekend of the contest. Caravans, mobile homes or other vehicles may also be used, but may only be moved on to the site on the weekend of the contest.

5. ANTENNAS:

Field station antennas may not be raised earlier than 1200 NZDT on the Saturday of the contest. Some stations may chose to erect antenna supports while others may use natural or standing supports. Eg. Hills, trees, towers, buildings etc.

6. ELECTRICAL POWER:

For field stations this must be from an independent source. i.e. batteries, portable generator engine alternators, solar power, wind or water powered generators, etc.

7. ENTRY CATEGORIES:

(Stations may only enter one category)

- Northern Region (Montgomery Cup)
- Central Region (Patea Shield)
- Midlands Region (ZL3/4 Trophy)
- Southern Region ('4' Trophy)
- Single Operator unassisted by any other person
- CW only
- Phone only
- 80m only
- Single-transmitter station 40m and 80m
- QRP 5 Watts CW/10 Watts SSB maximum (WM Hall Memorial Cup)
- Home stations
- Overseas stations in the Oceania Region

8. EXCHANGE:

- RS(T) report plus a serial number starting with 001 and incrementing by one for each successive contact, plus an NZART Branch number
- Simultaneous two-band operating stations must use separate serial number series for each band
 The same serial number series must be used for both Phone and CW contacts on the same band

9. MULTIPLIER NUMBERS:

Field day stations are usually at sites within the 'local area' of the Branch that the operators and others associated with the station are members of and use the number allocated to that Branch . If the chosen

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location is within the 'local area' of another Branch, care must be taken not to clash with the other Branch station. The onus is on the 'moved' station to ensure that there is no clash.

The numbers of Branches in recess may be used.

Individual operators or groups of operators may not have an affiliation to a particular NZART Branch but wish to operate a field station. In these cases it is suggested that they approach nearby Branches that don't normally operate in this event and seek permission to use their Branch number.

The Field Day Contest Manager should be contacted well before the event if there are potential problems with the use of Branch numbers. Contact details are under point 14 below.

Home stations must use 00 as a Branch number.

10. OPERATING PERIODS:

Each hour will be an operating period with a total of 18 operating periods.

Contacts may be made with any other field, ZL home or overseas (Oceania) station, once each operating period, on each mode on each band.

11. SCORING:

Contact Points:

Phone - 3 points, CW - 5 points (note change from 2024 onwards)

Multiplier Points:

- Each different Branch contacted on each band and mode counts as a multiplier. i.e.: a maximum total of four multiplier points may be claimed for each Branch
- Only one station per Branch may be claimed as a multiplier per band and mode. However, in cases
 where a Branch has more than one station active, different stations contacted, may be claimed for
 multiplier points, up to a maximum of four multiplier points per Branch, not four per station
- Contacts between stations using the same Branch number count for contact points only. Multiplier
 points cannot be claimed
- Field stations must make a minimum of 50 contacts on Phone or 20 contacts on CW on each band that the station is active on, in order for the multiplier points for their station to be valid for other stations

Total Scores:

The sum of the contact points multiplied by the total Branch multiplier point numbers worked.

12. LOGS:

• Separate logs must be submitted for each band in time and serial number order, regardless of the operating mode

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- Head each log sheet with; Station Callsign, Branch number or HS for Home Station, Page Number, Operator Callsign and Name
- Log sheet layout order; date time station worked mode, CW or PH band exchange sent exchange received. The total of PH/CW contacts on each page will be useful for log checking purposes
- Use a separate log sheet per hour period, except that where there are very few contacts in a period, several periods (ruled off between periods) can be on one sheet
- Highlight or underline each contact claimed as a Branch multiplier number
- Sample log sheets are provided in PDF on this page, to the right
- N1MM UDC that has been updated for the 2024 scoring change file can be <u>downloaded here</u>. Note that Log/Summary sheets are still required to be submitted

13. SUMMARY:

A completed Summary sheet must accompany all logs.

Page 1 of the Summary is to contain:

- Callsign used Branch name & number or HS for home station
- Postal address for certificates and email address for results
- Section or Category entered (one only)
- Names & Callsigns of operators
- Contact totals for 80m phone, 80m CW, 40m phone, 40m CW and a calculation/total of claimed contact points
- Branch multiplier points claimed for 80m phone, 80m CW, 40m phone, 40 CW and total of Branch multiplier points
- Claimed Total Score, i.e: contact points multiplied by the Branch multiplier points
- Details of equipment used: antennas, transceivers, generators etc and power output

Summary pages 2 and 3 are for listing the callsigns of the stations claimed as Branch multiplier points for each Branch on each band and mode. Count the numbers in each column and transfer the sum totals to page 1 of the Summary.

14. ENQUIRIES

If any clarification is required on any matter related to field day please feel free to contact the Jock White Memorial Field Day Manager - Stuart Watchman ZL2TW at clareandstuart@xtra.co.nz

15. LOG DEADLINE:

Logs together with Summary Sheets must be posted to reach Stuart Watchman, ZL2TW, 17 Aerodrome Road, Blenheim 7201, no later than the Saturday which is four weeks after the Field Day Saturday.

RAMBLINGS FROM THE EDITORS DESK

January, 2024.

A new year, A new month, but in reality what's actually changed?

I wonder if you made any new year's resolutions, and if so, How have they gone?

Surprisingly, I have given myself a new years challenge, and its to break the dependence on Apple/Google/Microsoft products for all of my ham radio needs in 2024.

So yes, I'm pushing to do all I can on Linux, Which is actually a whole lot easier than it sounds. After all, Apple's Mac OS is already based on BSD (not Linux, but very close to it), and Google OS is actually a linux variant too, But my driving force is not the software. Or even the need to replace all my computers to use it. It's the AI push to have



an OS that watches all I do, and then make suggestions as to what else I might like. I want to be free to decide what interests me, not to have some algorithm decide where to push me.

So yes, that less social media too, which is even easier, as I have resisted all social media that I can. Just a few pesky apps that I have to have for work, But I'm going to keep them in check.

But for me, 2024 has to be year that is not just more of the same, In 2023 we saw a lot of new hams get licensed, and we helped them get started with radio hardware too, but most have not attended meetings or been overly active on the repeaters. That said, It's nice to hear so much more activity on the radios and nets, and well done to those who have taken the first steps towards HF. But we need to understand why the club is not attractive to them, and what will we need to do to be more relevant.

A License is good, and opens the door to an incredible hobby, but if the club is not growing, then is it that we are not adding value, are our times not suitable for a modern age, or are we missing something else, that they were looking to gain, that we are not meeting. We will also need to look at the way we organise our training, and activities. Including some field ops.

The first place we need to start is with the Jock White Memorial Field Dad on the 24th and 25th of February. This year we will need some new operators to look at stepping in to fill the vacancies of departing team members, and it's a great way to learn HF radio operation, contesting and Logging. The goal is to set up a field station that is 100% portable, and using only the 80 and 40 metre HF bands. Then operate it for 2 windows of 9 hours to gain as many contacts as possible. This requires an operator, and a logger at each station, every hour. Then we also need to keep the teams fed and watered, Like previous years we will use the clubrooms site, but we have to erect our own antennas, battery power and operation sites within the rules.

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So, if you want to help put up antennas, we have a role for you, If you want to operate, We have a role for you, If you can write a log, or type the data into logging software, we have a role. You like making coffee, yes, we have a role there too. Don't worry training will be provided, and you won't be on your own, but the more we have to share the load, the lighter the load will be for everyone.

I recommend it, and we will be there, hopefully some of you will join us. It would be fun to build a team that can compete for many years to come, and maybe train their replacements too.

January has found me travelling the country in the motorhome as we make our way down the country to meet our newest granddaughter. In fact the newsletter is being written on a laptop without the large screens I use when working on documents normally, but its also shown me just how much work I can do from a laptop in a motorhome, with a phone wi-fi connection. (Assuming it all works), sadly I cant join the net on 6625 from here, but when I can put out an antenna, I will try to make

some HF calls, and see what happens, Including some NVIS experiments (I hope)

Our journey started with a trip to Tauranga for New Year's, which was rained out, so we caught up with family and achieved as much as we could instead. Then we travelled to wellington for the ferry crossing, which has been brought forward because ... Well babies come when they feel like it, but we still don't know when, so ... Let's just cross anyway. (but why do we have to check in at 5am, What was I thinking?)

I considered putting out the antenna on the 1st to try and join the portable activity day, but between the weather and the solar flares HF comms was not looking great for the day, also I spent most of the day travelling to get to wellington. While I missed that chance, there will be more, So hopefully we might even get to activate a park or two along the way.

One benefit of motorhome living like this is you don't have a schedule, Just a list of "I hope we get to..." which might not end up working out as you planned, but will hopefully still be a good result anyway, but this also means the newsletter is late, and it's a bit smaller than usual, so I hope you can forgive me, after all we are all amateurs, and our hobby has to work around our life.

So I guess if I have a desire for 2024 it's that we find balance. We can all get a bit precious about how we do things, because that's how we have always done it, but at the end of the day, unless we try some new ideas, we may know what we are missing. I hope to use this trip to figure out some better HF deployments, and maybe make some new friends on the local repeaters, I may even make an IRLP link up to the Auckland 670 repeater sometime, just to remember how to do it.

I don't have my computers, or my modern radios, so digital modes are off the menu, but for now, I think I have enough to play with.

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So my radio goals are simply social. Unless I get to find out what the Christchurch club is doing to make it so successful. Some genuine theft of growth ideas my be a possibility.

Otherwise Its enjoy what I can, Be there for family as we are needed, and play with the hobby when and as I can, I may even figure out using N1MM to record the contacts and see how it supports JWFD too.

So whatever you have in mind for January 2024, I hope you get the balance right.

Have a good break. Have some fun times. Get your work/life balance right Enjoy the radio when and as you can Don't forget to pop in and say high If you hear a call, Answer if you are free

Richard, and our brilliant committee will be looking after the club in February till I get back, so please thanks them for stepiing up, and I'll see you all later in February.

Till then, Have fun, play nice, and keep safe.

73 for now de ZL1NUX





ICARUS GOT CLOSE, BUT PARKER WILL TOUCH THE SUN.

A year from now, on 24 December, Nasa's Parker Solar Probe will race past the Sun at the astonishing speed of 195 km/s, or 702,000 kph.

No human-made object will have moved so fast nor, indeed, got so close to our star - just 6.1 million km from the Sun's "surface".

"We are basically almost landing on a star," said Parker project scientist Dr Nour Raouafi.

"This will be a monumental achievement for all humanity. This is equivalent to the Moon landing of 1969," the Johns Hopkins University Applied Physics Laboratory scientist told a packed media briefing.

Parker's speed will come from the immense gravitational pull it feels as it falls towards the Sun. It will be akin to flying from New York to London in under 30 seconds.

The challenge Parker faces in doing this will be huge. At perihelion, the point in the probe's orbit nearest the the star, the temperature on the front of the spacecraft will probably reach 1,400C.

Parker's strategy is to get in quick and get out quick, making measurements of the solar environment with a suite of instruments deployed from behind a thick heat shield.

The reward, researchers hope, will be breakthrough knowledge on some key solar processes.

Chief among these is a clearer explanation of the workings of the corona, the Sun's outer atmosphere.



The corona is an area of interest to scientists as it experiences what seems to be counter-intuitive superheating. The temperature of the Sun at its photosphere, the surface, is roughly 6,000C but within the corona it can reach a staggering million degrees and more.

You'd think temperature would decrease with distance from the star's nuclear core. It's also within the corona region that the outward flow of charged particles - electrons, protons and heavy ions - suddenly gets accelerated into a supersonic wind moving at 400 km/s, or 1,000,000 mph.



Scientists still can't fully explain this either. But it's critical to improving forecasts of solar behaviour and the phenomenon of "space weather".

The latter refers to the powerful eruptions of particles and magnetic fields from the Sun that can degrade communications on Earth and even knock over power grids. The radiation also poses health risks to astronauts.

It is also these charged particles that "Ionise" the ionospheric layer that enable long range HF communications for Ham radio operators, so this information should also help us to better predict how changes on the suns surface will affect rhis critical layer for radio communications. Parker has been making multiple approaches to the sun, using mercury and venus to provide gravity assists, to help it turn back towards the sun, getting closer and faster each time it passes. It has three planned passes in 2024 before it then swings around Venus on 6 November to help bend its orbit and make 24 December a historic occasion.

The head of science at Nasa is Dr Nicky Fox. She was the lead scientist on Parker before taking up her current role.

She said the major plus of the 24 December flyby would be the length of time the probe got to sit in the corona, far longer than on any previous pass.

"We don't know what we'll find, but we'll be looking for waves in the solar wind associated with the heating," she told the media audience.

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"I suspect we'll sense lots of different types of waves which would point to a mix of processes that people have been arguing over for years."



The coming year will be the apex of Parker's mission; it won't be able to get any closer to the Sun beyond December, not least because its orbit will no longer afford swingbys of Venus to train its trajectory onto an even tighter path.

But to go any closer would also risk shortening the shadow cast by Parker's big shield, exposing the rear of the spacecraft to intolerable temperatures.

The parker space probe will eventually fall into the sun in a dramatic dive into its depths, but its unlikely any data will be recovered from the dive, Instead the probe may create a very small coronal hole (one too small to be notice by our observing telescopes), but data from the passes will fuel many more years of analysis and even more speculation about the star that powers our hobby, and in fact, all life on planet earth.

OUT WITH THE OLD, IN WITH THE SODIUM

Lithium Batteries offer some key advantages over more traditional storage devices in their ability to both deliver high current quickly due to their low internal resistance, but even more importantly, they can absorb charge very quickly. While a traditional lead acid battery can only be charged at 1/10th C or less, the Lithium can easily handle 1C or even higher.

But lithium has some issues to, including the challenges of recycling all the battery, and the flammability of the materials. Ironically it seems the work done on lithium batteries may be just what we need to make an even better battery.

So what is a Sodium Battery?

A sodium-ion battery is a type of rechargeable battery comparable to the lithium-ion battery, but it uses sodium ions (Na+) as the charge carriers rather than lithium ions (Li+). The working principles behind and cell construction of a sodium-ion battery is virtually identical to those of lithium-ion batteries, but sodium compounds are used instead of lithium compounds.

Like their lithium-ion counterparts, these batteries indulge in an ionic waltz, where sodium ions sashay between two electrodes to store and release energy. Here's the twist: sodium is the salt of the earth, literally. It's everywhere. This means batteries made of sodium can cost less and do not require the rare and pricey materials that lithium-ion batteries demand. This is not just good news; it's a potential game-changer for energy storage on a grand scale.



The sodium battery is not new, in fact early voltaic piles used Brine (Salt Water) as the electrolyte, The big problem with both Lithium and Sodium Batteries is cellular Balance, and this has limited practical sodium batteries. The real innovation and signs that sodium might be a big player began with new research in the late 1990s, and it's now paying off.

For a battery to operate well, each cell (remember a battery is cells wired in series to raise the voltage, and in parallel to raise the capacity and current) must operate as identically as possible, especially during charging. Sadly, in the real world no cell is exact, most battery chemistries can live with the small variations, but Lithium and more so Sodium, have very but variations in performance, with some cells trying to grab all the current (overcharging) while others get lost in the background (undercharging). This spells doom to the battery capacity shrink its lifespan, and, in the case of lithium, even invite safety hazards for an unscheduled pyrotechnics display.

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Enter the backstage heroes: researchers sharpening their tools to craft the ultimate balancing act. One such cutting-edge tool is active cellular balance systems. Like vigilant stage managers, they monitor each cell's voltage and state of charge, redistributing energy to ensure every cell contributes equally to the performance. By actively directing the charge distribution, this technique keeps cellular imbalance at bay and turns up the overall performance on the battery pack's show. This has made lithium useable, but Sodium has still eluded practical design.



But recently the innovation spotlight has had an unexpected hero. Picture algorithms and artificial intelligence (AI) not as just fancy terms, but as the energy micro-managers predicting and managing cellular imbalances millisecond by millisecond. They dive deep into data, unveiling patterns and signs that point to potential improprieties in balance. Armed with this insight, the AI system tweaks charging and discharge rates of each cell to maintain equilibrium. This proactive approach doesn't just elevate sodium-ion battery performance—it could prolong its lifespan.

Scientists are not stopping at electronic wizardry. They're also venturing into the arena of advanced materials and electrode designs to boost cellular balance in sodium-ion batteries. By engineering electrodes that are veritable highways for ion traffic, they aim to nip cellular imbalances in the bud. Coupled with the development of new materials that boast improved stability and energy density, the future looks bright for both cellular balance and overall battery performance.



The future looks good for cheap high capacity sodium batteries, that don't burn.

So how good are they, CATL is producing Sodium Batteries with 200W/kg of capacity, about the same as most EV lithium batteries, yes, I know Tesla has a rating of 260W/kg for its newest batteries), but at much lower costs, possibly longer life, and no rare earth metals, this wont be a product from just one company. So watch this space.

Finaly it is looking like the AI boom of 2023 might have a real world use, and this one, Might actually be useful.

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FOR A LAUGH



@WARHEADSCOMICS



HEARD AROUND THE SCENES

FREE LINUX TRAINING.

With raspberry pi's becoming more common, and the inability to upgrade many older windows PC;s to windows 11, its never been a better time to switch to Linux, But did you know that you can get free training in linux on-line.

If you have always envied folks who are Linux-savvy because they have such an easy time doing things like moving files around a home network, or quickly moving batches of files between PCs with nothing more than a few lines of text. While you have to have to do loads of mousing around pointing and clicking to accomplish the same things, which can be murder on both your wrists and your ego.

But it's also true that there is so much to learn that there must be no one best way to start, but you can dip your toes in by working through some free courses at The Linux Foundation starting January 1, 2024.

These plenty to choose from, But if you're a complete newbie, and what to try, This is a good start course.

https://training.linuxfoundation.org/training/introduction-to-linux/

NO OFFICIAL BROADCAST IN JANUARY: THE NEXT OFFICIAL BROADCAST WILL BE HELD SUNDAY 25TH FEBRUARY 2024 AT 8:00 PM.



The HF broadcast is made on 3900 kHz, LSB at the top end of the 80m

band. It will be rebroadcast in the Auckland area on the 6625 Repeater, and is available on the NZART website: <u>NZART-Official Broadcast</u>



Papakura Radio Club Inc.

SOME NETS - FOR WHEN YOU ARE LOOKING FOR SOME COMPANY

Day	Time (Local)	Freq (MHz)	Group
Sunday	08:00	3.750	Southern Net
	08:30	146.625	Br 65 – Papakura Net
	09:00	3.700	Br 10 - Franklin
	09:15	3.755	Br 65. Papakura.
	09:30	146.900	Br 10 – Franklin ZL1SA
	19:00	146.700	YL Net
	19:45	145.575	Thames radio club ZL1DF
	20:00	3.700	Br 42. Titahi Bay
	21:30	3.595	Duran WIA Net.
Monday	11:30	3.850/7.125	Br 12, Hamilton
Tionady	19:30	3.757	Br 12, Hamilton
	20.00	3 540	CW Practice Net
	20:00	3.605	Br 80 Hibiscus Coast
	20:00	3 870	O T C (Old Timors Club)
	20.30	5.070	
Tuesday	00.00	7 006	Ex Doct Office Techs
Tuesuay	21.00	1.090	160m Not Don 7141ME
	21:00	1.850	
	19:30	3.690	QRP ZLZBH
	20:00	3.581	CW improvers Net
	11.00	0.050/7.405	
Wednesday	11:30	3.850/7.125	SPAM Net
	19:30	146.700	ZL1AB Net
	20:00	3.660	Geek Net
	20:00	3.645	Br 02. Auckland
	20:00	3.745	Br 84. Bay of Islands
	20:30	146.525	W.R.S.C
Thursday	09:00	7.096	Ex Post Office Techs
	19:30	3.690	QRP ZL2BH
	20:00	3.540	CW Practice Net
	20:00	3.615	Br 89. REG Net
	20:30	3.696	ZL1OA
	20:30	3.666	LF Net ZL2CA
-	20:00	3.690	ZL QRP SSB Net
Friday	20:30	3.850	SPAM (AM Mode)
	20:30	3.650	W.S.R.C.
	20:30	3.560	Digital Modes Net
Saturday	10:30	28.530	10-10 Down Under
outur day	19:30	3.650	Christian Fellowship
	20:30	3 600	Br 62 Reefton/Buller
	20.00	5.000	
Daily or Other	07.30	3 696	7Ι 2ΟΔ
	08:30	3 730	71 3RP
	15:00	14 300	Pacific Seafarers
	17.30	3 760	Home Brew
 	05:00 7:00	1/ 183	
	18.00	7 115	
	10.00	2 720	
	19:30	3.720	
	18:30	3./00	
	08:30/20:00	3./30	
	20:30	3.725	LL2HN / LL4KF
	21:00	3.677	Counties Net ZL2MA
	21.00	3.535	New Zealand Net (CW)

This is designed to be a living list, Please send me any updates whenever you are able:

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Papakura Radio Club Inc. Branch 65 NZART Club Directory 2017 Wellington Park, 1 Great South Road. PO BOX 72-397 Papakura 2244 PHONE 09 296 5244 Westpac 03-0399-0019896-00

Club website: http://www.qsl.net/zl1vk Club email: zl1vk.club@gmail.com

President	ZL1NUX	Gavin Denby	021 459 192
Vice President	ZL1BNQ	Richard Gamble	021 729 270
Secretary	ZL1AOX	Ian Ashley	021 198 1810
Treasurer	ZL1MR	David Wilkins	021 185 7903
Committee	ZL1DK	David Karrasch	021 560 180
	ZL1IRC	Ian Clifford	021 082 48400
	ZL1RJS	Rob Stokes	021 307 005
	ZL1RIC	Ricky Hodge	027 533 8155
	ZL4MDE	Mike Enderby	021 529 895
	Zl1KIM	Kimi Nooroa	TBA
AREC Section Leader	ZL1BNQ	Richard Gamble	021 729 270
CD Liaison	ZL1AOX	Ian Ashley	021 198 1810
Newsletter Editor	ZL1NUX	Gavin Denby	021 459 192
Hall Custodian	ZL1AOX	Ian Ashley	021 198 1810
Newsletter.	Contact:	zl1nux@outlook.com	

Our newsletter is published monthly and normally distributed just before the club meeting. Please forward articles etc to the editor Wednesday 1 week before the general meeting. Please notify any change of address. Including E-Mail Address to the secretary.

Meetings

General Meetings are held at the Clubrooms on the 1st Wednesday of each month, starting at 7.30 pm. Look at your calendar and mark these nights. The speaker follows the General Meeting. Project Evenings are on the 4th Wednesday of each month.

Committee Meetings are held on the 3rd Wednesday of each month at 7.30 pm unless advised. Activity Nights are held on the 2nd Wednesday starting at 7.30 pm.

AREC Meetings are on the 5th Wednesday night, also starting at 7.30 pm

AGM: Held in November

Subscription: Full membership and newsletter \$25.00 Family Membership and newsletter \$40.00 Bank Account number: 03-0399-0019896-00 Working Bees As required.

Branch 65 21 Award: For contacts with ZL1VK (5 Points) and 8 Papakura Radio Club Members (2 Points each) after January 2011. Total 21 Points. Cost \$5-00. Certified list and \$5-00 to Secretary, Papakura Radio Club. Address above.

ZL1VK Club Nets

146.625 MHz Sunday at 8.30 am. Controller ZL1NUX, Gavin Denby. If the repeater is not available, listen 146.475MHz simplex.

3.755 MHz Sunday at 9.15 am. Controller ZL1BNQ Richard Gamble. (Linked to 146.675 & 438.775)

Papakura Radio Club Inc.