The Official Newsletter of the

PAPAKURA RADIO CLUB INC.

November 2022

AGM Edition

CONTENTS ...

This Month's Meeting:

Wednesday 2nd of November will the next general meeting for 2022. Following General Business, We will be holding the AGM, including the appointment of officers for 2022/2023 year

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

CLUB ACTIVITY:

As life returns to normal, its been good to have some extra presentations at club meetings in addition to the general meeting ones, and I for on enjoyed Richards demonstration of how to test a coax with just a radio and a power meter, as well as looking at how he tunes the repeater cavity duplexers when sets up the portable repeaters. It was good to note the difference between 5 and 6 cavity units, and the surprisingly good value of some of the Chinese import duplexers at UHF.

A big thanks to all who put their hands up, and kept things happening while I was away

26TH AND 27TH NOVEMBER
WIA VHF/UHF SPRING FIELD DAY

The Field Days provide VHF-UHF operators with the opportunity to "head for the hills" and see how far distant and how many stations they can work.

The Field Days have separate sections for single and multiple operator stations. The duration of the Field Day is 24 hours, but there are also 8-hour sections for operators who may not be able to camp overnight. Most club stations prefer to operate for the full 24 hours.

The Field Days also generate plenty of activity from home stations, so there is also a separate home Station section.

All contacts must be simplex: contacts through repeaters or satellites are not allowed. There is plenty of FM activity, but one feature of the Field Days is a high level of SSB activity.

It is possible to do very well with only modest antennas if you pick a good hilltop. Another option, if your station is easily transportable, is to operate from more than one location during the contest period.

Aim Of the Contest

The overriding aim is to get away for the weekend and have fun! But next after that, the aims are:

- to encourage more activity on VHF and microwave bands;
- to encourage people to work greater distances than usual by operating portable, and
- to provide opportunities for people to activate or work into new grid squares.

For more information check out https://www.wia.org.au/members/contests/vhfuhf/

NOTICE OF AGM

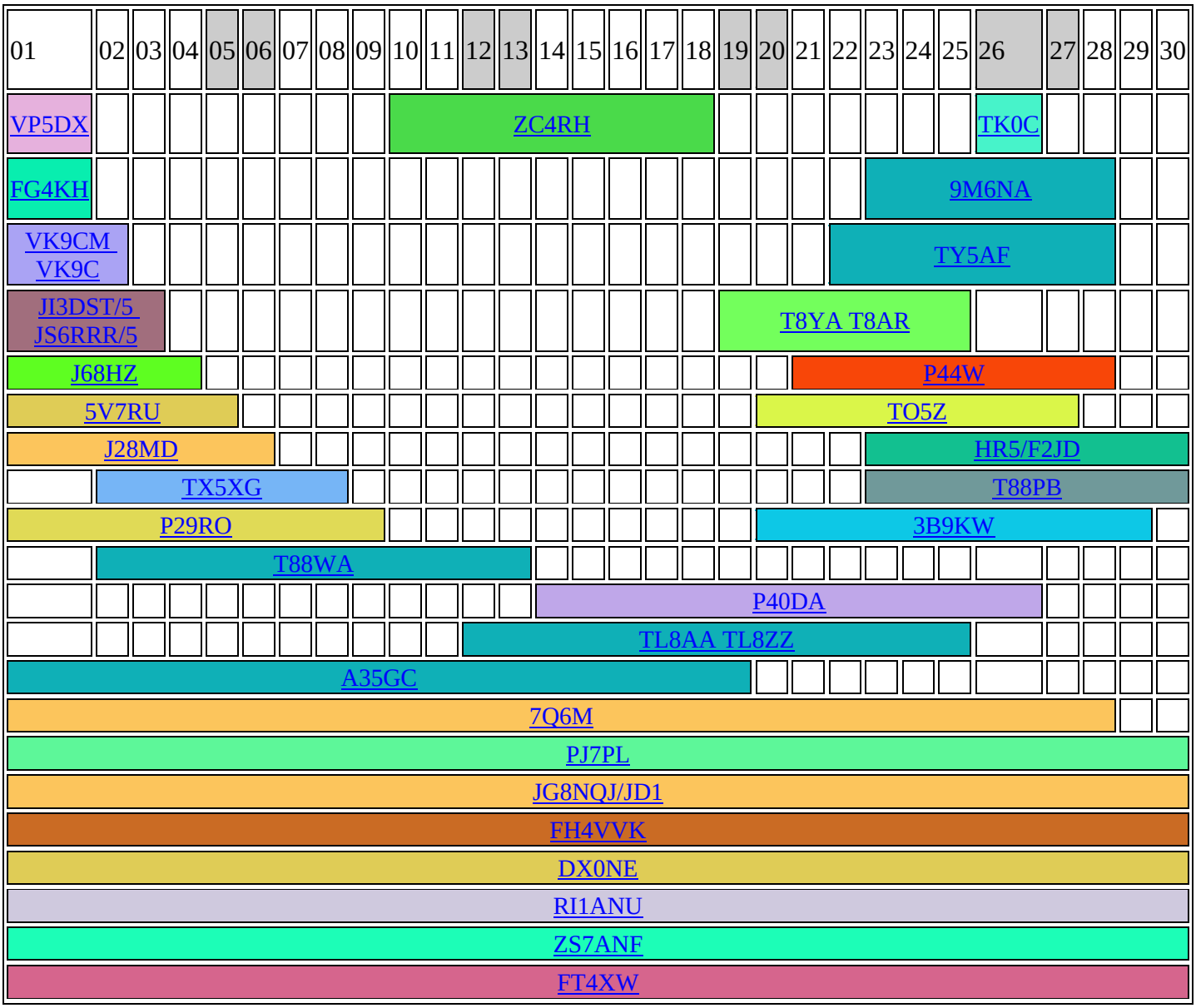
Notice is given that the AGM of the Papakura Amateur Radio Club shall be held at the Clubrooms, 1R Great South Road Papakura

This will be held on the second of November 2022 at 8PM (following the General Meeting)

Members should have received a copy of the minutes of the 2021 AGM, and the 2022 Agenda with this newsletter

Any enquiries or matters for the meeting should be directed to the club secretary.

DX CALENDAR NOVEMBER 2022



Featured DX

RI1ANU Novolazarevskaya Station Antarctica

Oleg, ZS1OIN will be active as RI1ANU from Novolazarevskaya Station, Antarctica, starting 24 October 2022.
He will operate on HF Bands using Icom IC7300 with PA 1 kW and antennas A4S and V-Beam.

QSL via home call.
Ads for direct QSL: Oleg Neruchev, P.O.Box 808, West Beach Vill, 7433, Cape Town, South Africa

UPCOMING CONTESTS

Check for updates and a downloadable PDF version online at **www.arrl.org/contest-calendar**.
Refer to the contest websites for full rules, scoring information, operating periods or time limits, and log submission information.

Date-Time		Date-Time		Bands	Contest Name	Mode	Exchange	Sponsor's Website
1	0100	1	0159	1.8-28,50	Worldwide Sideband Activity Contest	Ph	RS, age group (OM, YL, youth YL, or youth)	**wwsac.com**
1	0300	1	0400	1.8-28	QCX Challenge	CW	RST, name, SPC, rig	**www.qrp-labs.com**
1	0600	1	0859	3.5,7	Silent Key Memorial Contest	CW	RST, SK call sign you wish to recognize	**www.skmc.hu/en/rules.html**
2	1700	2	2100	144	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	**www.ft8activity.eu/index.php/en**
2	2000	2	2100	3.5	UKEICC 80-Meter Contest	Ph	6-char grid square	**www.ukeicc.com**
3	0000	4	0300	7	Walk for the Bacon QRP Contest	CW	13 WPM max; RST, SPC, name, mbr/power	**qrpcontest.com**
3	1800	3	2200	28	NRAU 10-Meter Activity Contest	CW,Ph,Dig	RS(T), 6-char grid square	**nrrlcontest.no**
3	2000	3	2200	1.8-28,50	SKCC Sprint Europe	CW	RST, SPC, name, mbr or "none"	**www.skccgroup.com**
5	0600	5	1800	3.5-28	IPARC Contest, CW	CW	RST, serial, IPA, US state (if USA)	**www.iparc.de**
5	2100	7	0300	1.8-28	ARRL Sweepstakes Contest, CW	CW	Serial, precedence, your call, check, ARRL/RAC Section	**www.arrl.org/sweepstakes**
6	0600	6	1800	3.5-28	IPARC Contest, SSB	Ph	RST, serial, IPA, US state (if USA)	**www.iparc.de**
6	1400	6	1700	3.5-28	High Speed Club CW Contest	CW	RST, mbr or "NM"	**www.highspeedclub.org**
7	2000	7	2130	3.5	RSGB 80-Meter Autumn Series, Data	Dig	RST, serial	**www.rsgbcc.org**
8	0100	8	0159	1.8-28,50	Worldwide Sideband Activity Contest	Ph	RS, age group (OM, YL, youth YL or youth)	**wwsac.com/rules.html**
8	0200	8	0400	3.5-28	ARS Spartan Sprint	CW	RST, SPC, power	**arsqrp.blogspot.com**
9	1700	9	2100	432	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	**www.ft8activity.eu/index.php/en**
10	1900	10	2000	3.5,7	EACW Meeting	CW	RST, mbr, nickname, EA province or DXCC prefx	**www.eacwspain.es/eacwmeeting**
12	0000	13	2359	50-1296	ARRL EME Contest	CW,Ph,Dig	Signal report	**www.arrl.org/eme-contest**
12	0000	13	2359	3.5-28	WAE DX Contest, RTTY	Dig	RS, serial	**www.darc.de**
12	0000	14	2359	1.8-7	PODXS 070 Club Triple Play Low Band Sprint	Dig	RST, SPC	**www.podxs070.com**
12	0001	13	2359	28	10-10 International Fall Contest, Digital	Dig	Name, mbr or "0," SPC	**www.ten-ten.org**
12	0300	13	0900	50,70,144, 432,1296	SARL VHF/UHF Analogue Contest	CW,SSB, AM,FM	RS(T), 6-char grid square	**www.sarl.org.za**
12	0700	13	1300	1.8-28	JIDX Phone Contest	Ph	RST, JA prefecture number or CQ zone	**jidx.org**
12	1200	13	1200	1.8-28	OK/OM DX Contest, CW	CW	RST, 3-letter OK/OM district code or serial	**okomdx.crk.cz**
12	1200	13	2359	1.8-28,50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	**www.skccgroup.com**
12	1600	12	1800	3.5-28	FISTS Saturday Sprint	CW	RST, name, mbr or "0," SPC	**fstsna.org**
12	1900	14	0500	1.8-28, 50,144,432	CQ-WE Contest	CW,Ph,Dig	Name, location code, years of service	**cqwe.cboh.org**
12	2300	21	0300	1.8-14	AWA Bruce Kelley 1929 QSO Party	CW	RST, name, QTH, equipment year/type/power	**antiquewireless.org**
13	0700	13	1700	3.5-28	FIRAC HF Contest	Ph	RS(T), serial	**www.frac.de/FIRAC_HF_ CONTEST_E.pdf**
13	1400	16	0800	1.8-28, 50,144	Classic Exchange, Phone	Ph	Name, RS, SPC, rig make/model	**www.classicexchange.org**
14	0100	14	0300	1.8-28	4 States QRP Group Second Sunday Sprint	CW,Ph	RS(T), SPC, mbr or power	**www.4sqrp.com**
15	0100	15	0159	1.8-28,50	Worldwide Sideband Activity Contest	Ph	RS, age group (OM, YL, youth YL, or youth)	**wwsac.com**
16	1700	16	2100	1.2G	VHF-UHF FT8 Activity Contest	FT8	4-char grid square	**www.ft8activity.eu/index.php/en**
16	2000	16	2130	3.5	RSGB 80-Meter Autumn Series, SSB	Ph	RS, serial	**www.rsgbcc.org**
17	0000	18	0300	14	Walk for the Bacon QRP Contest	CW	13 WPM max; RST, SPC, name, mbr/power	**qrpcontest.com**
17	0130	17	0330	3.5-14	NAQCC CW Sprint	CW	RST, SPC, mbr or power	**naqcc.info**
17	1900	17	2000	3.5-14	NTC QSO Party	CW	25 WPM max; RST, mbr or "NM"	**qsl.net/ntc/party.html**
19	1200	20	1200	3.5-28	LZ DX Contest	CW,Ph	RS(T), 2-letter LZ district or ITU zone	**lzdx.bfra.org/rulesen.html**
19	1600	19	2359	1.8	All Austrian 160-Meter Contest	CW	RST, serial, OE district code (if OE)	**www.oevsv.at**
19	1700	20	0100	1.8	REF 160-Meter Contest	CW	RST, serial, department code	**concours.r-e-f.org**
19	1900	19	2059	1.8-7,21, 28,50	Feld Hell Sprint	Dig	RST, mbr, SPC, grid	**sites.google.com/site/feldhellclub**
19	1900	19	2300	1.8	RSGB 1.8 MHz Contest	CW	RST, serial, UK district code (if UK)	**www.rsgbcc.org**
19	2100	21	0300	1.8-28	ARRL Sweepstakes Contest, SSB	Ph	Serial, precedence, your call, check, ARRL/RAC Section	**www.arrl.org/sweepstakes**
20	1300	20	1700	3.5,7	Homebrew and Oldtime Equipment Party	CW	RST, serial, class	**www.qrpcc.de**
20	2100	20	2300	3.5-28	FISTS Sunday Sprint	CW	RST, SPC, name, mbr or "0"	**fstsna.org**
20	2300	21	0100	1.8-28	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or power	**qrpcontest.com**
22	0100	22	0159	1.8-28,50	Worldwide Sideband Activity Contest	Ph	RS, age group (OM, YL, youth YL, or youth)	**wwsac.com**
23	0000	23	0200	1.8-28,50	SKCC Sprint	CW	RST, SPC, name, mbr or "none"	**www.skccgroup.com**
24	2000	24	2130	3.5	RSGB 80-Meter Autumn Series, CW	CW	RST, serial	**www.rsgbcc.org**
26	0000	27	2359	1.8-28	CQ Worldwide DX Contest, CW	CW	RST, CQ zone	**www.cqww.com**
28	2000	28	2130	3.5-14	RSGB FT4 Contest	FT4	4-char grid square	**www.rsgbcc.org**
29	0100	29	0159	1.8-28,50	Worldwide Sideband Activity Contest	Ph	RS, age group (OM, YL, youth YL, or youth)	**wwsac.com**
30	2000	30	2100	3.5	UKEICC 80-Meter Contest	CW	6-char grid square	**www.ukeicc.com**

All dates and times are in UTC,

2022 EXAMINATION ADMINISTRATION REPORT:

In trying to get back to the new normality from Covid in 2022 we have had four candidates who sat and passed the radio exam at Papakura Club rooms this year. Thanks go to Gavin ZL1NUX who did another ham cram in August.

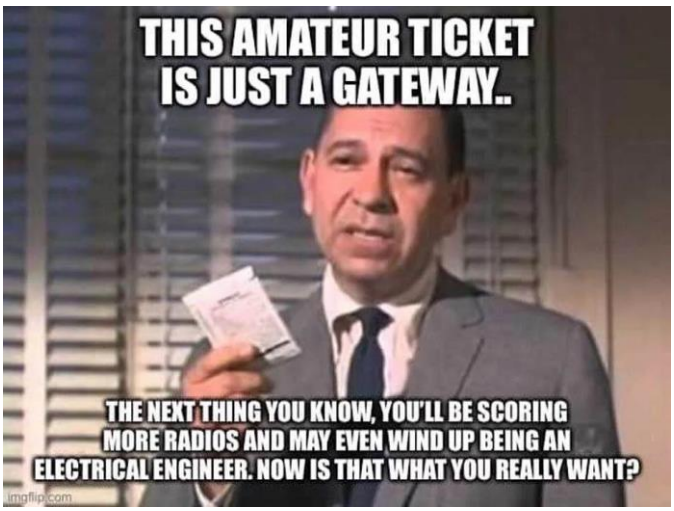
Congratulations to the following four candidates: -
David Geurts ZL2DSG
Steven Jason Charlton ZL4SJC
Sandra Ashworth (Sandi) ZL1JET
Phillipa Buckton (Pip) ZL4SKY

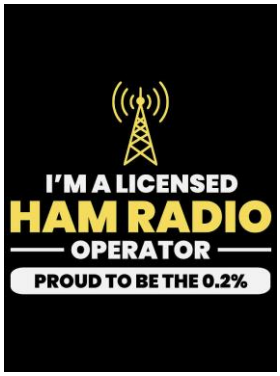
If you have not heard them already up on the air, please listen out and give them a call to help be a part of their 50 contacts and welcome them to the airwaves and the Papakura club. I have already heard David calling and had a QSO with him and look forward to having a QSO with the others.

Well done and enjoy the hobby.

If you know of anyone interested and wanting to become a radio ham, please let me know or any of the committee and we can do the rest. Our contact details are always on the back of the Papakura Club's newsletter. Remember radio is one of the safest ways to communicate.

73 de Rob ZL1RJS





PRESIDENTS REPORT

As we bring another year to a close, we normally look back to see what we have achieved, but this year, like the last few, is not one we want to look back on. Not because it's been a bad year, (even though our last AGM was virtual due to lockdowns) but because we as a club must instead focus on the years ahead.

Our membership has seen more silent keys this year than we would have wanted to see, but overall, our membership numbers have held a stable pattern. But we have also had some signs of growth, and the potential exists for more to come and enjoy the hobby that is amateur radio. The club is in good financial health, thanks to the careful stewardship of the committee, especially our secretary and treasurer, and the income from hall rentals, but we have to balance this with the need for members to have access to the hall for club functions. As we return to a more normal life, we face challenges to grow the hobby, and prepare the club for the next decade.

If we are to connect and train a new generation of radio operators, we will need to embrace the challenges that come as part of that change. Those new to the hobby must be nurtured and supported in getting started, Most will not have the technical knowledge, or equipment to set up their first station, even though they will be keen to try, but this too is not surprising. Many of our members are struggling to get or stay on the air, so it should be no surprise that new hams may need guidance.

City rules on antennas have changed as the size and nature of our living arrangements. Small city sections, flats, village dwellings and even apartments are the way many of us will live in the days ahead. Many members can no longer erect a tower, or even a decent vertical antenna, so they will need to use some low visual impact (stealth) antennas, while these will not be an optimal antenna, they are better than nothing. As a club, we will probably need to find ways to construct, and possibly help install these, especially for HF bands. But even VHF antennas are sometimes difficult to set up in this new world of high-density housing. And we can only imagine the problems with local RF noise. But if they do not get on the air, and find a welcoming community on air, then other distractions will keep them from enjoying the hobby they worked so hard to become part of.

Perhaps this is one of the reasons that field operations Like SOTA, parks or lakes are gaining popularity. If they are to be a possible solution, how will we adapt our role to help support these operations? Yes, meeting in a hall, and sharing stories can be inspirational, but we can, and must do better. We need to change while retaining our heritage if we are to be a club for the world we are moving towards.

As we appoint our officers for the new year, as we ask you to consider our direction, and as we make plans to be a club for the coming year, I ask each of you to consider if you can assist in making this dream a reality. Your contribution need not be large, A QSL manager, hall custodian, or net controller is no less a role than a committee member or officer. If you cannot serve in this way, do you have a skill or story you can share? We will need speakers for the general meetings next year, and maybe you can inspire someone along their journey, perhaps you may even add a story to the newsletter.

Yes we will appoint or officers and a committee, and we will set a direction towards our future, but a club is as strong as its membership, and each of you has something to offer. We are stronger together, so I look forward to seeing you at the AGM, and then again next year.

Gavin Denby (ZL1NUX)
President

AWARDS REPORT:

No applications for awards were received this year.

HALL CUSTODIAN: Ian ZL1AOX.

The bookings are now controlled by the Secretary.

Keys were issued to the Papakura Floral Art Group and the Papakura Garden Club and there have been no problems with this.

Two new sets of keys were made with one set given to the local National Party.

The CDEM group has placed under our care a generator for the Papakura/Drury area and remains in storage under the stairs.

Two key boxes were installed in October 2015 to make it easier for access by Members and Committee when required and this seems to be working OK. Lockbox was replaced during the year to a failure of the mechanism

Hall Cleaning duties were carried out by David ZL1DK and Ian ZL1AOX. Thanks to all others for helping out. We thank the Healing Hands for maintaining the hall in a clean condition.

Our main user is the Healing Hands Spiritualist Church who use the Hall every Sunday and on some Friday evenings.

The Papakura Floral Art Group and the Papakura Garden Club are our other two regular users on the second and third Tuesday of each month.

Other groups aligned to Healing Hands have also used the Clubrooms during the year.

The Papakura Branch of the National Party have signed up for regular meetings on the 3rd Sunday of each month for this year and 2023. Times 1500 to 1700

Our users have not been invoiced for COVID related cancellations.

The installation of three air conditioners was a major improvement to the Clubrooms in 2019-20 are working well

Ian ZL1AOX, Secretary, Papakura Radio Club Inc.
30th October 2022.

RAMBLINGS FROM THE EDITOR'S DESK

So, another year has passed, and we are again about to have another AGM, despite the challenges of the last few years we have managed to keep the newsletter in your inbox every month, and that requires a big thank you who have contributed, no matter how small the contribution, it has been appreciated.

If your interested in Space, it's a great time to be watching the many space websites and videos, SpaceX is launching Falcon heavy and advancing towards a first flight for Starship, NASA is going to try again for an Artemis launch (the most powerful rocket ever) on November 14 and Rocket lab is looking to increase its own capacity, including larger rocket launches from the USA and NZ sites. In addition the sun is waking up, but becoming stable, and there are plenty of asteroid missions to keep track of (e.g. lucy).

There has been much to celebrate, with new family members, and many sorrows as friends and loved ones have passed on, but life keeps on moving, and we move with it. Over the past 3 years, I have thought that the end must be in sight, and while there have been changes in each year, the cost of the financial impacts of the last few years has only just started to reveal itself, and it looks like 2023 will be the year we get to pay the bill for our collective borrowing.

Rising interest rates and an ever-increasing risk of recessions, a health system that is in crisis, A fire service taking strike action may only be precursors to the risks that we may face in 2023 as world energy and food shortages, and global depressions, and even the possible escalation of the war in Europe, which seems to have no plan on how to end it. All seem to be looming on the horizon. It would be easy to get lost in the wave of bad news and join the ever-increasing numbers needing assistance with their mental health.

Ironically, I do not share in the doom. Of course, I am taking steps to make sure I am prepared for the coming difficulties, but I am not panicking. The difference is that unlike so many, I have spent much of my life preparing to be self-reliant so should a civil defence emergency occur, our family is prepared to look after ourselves for many days. Sadly, even this basic message has not been followed by a large number of New Zealanders, but I am certain you will have at least 3 days of food and water, and some basic supplies. Why? Because you are a ham.

There is something about a ham operator that makes them a bit more self-reliant Maybe not to the level of our predecessors, I can only imagine what a field day would have been like in the days before solar and portable generators, yet they lead the way and showed us how to do it. Even if we had a full-on recession, our standard of living would be unlikely to reach the levels of the recessions of the past, but if the power went off, would you be able to charge a phone, or find a way to keep warm. Most might say no, but I suspect most of us would say yes.

Call it the number 8 wire mentality or maybe the give-it-a-go mindset, but whatever title you give it, hams are more likely to try something and get a working solution using what they have at hand. And we learnt a lot of this from our hobby. This less-than-perfect solution mindset however is not always received or understood by others, but we know that we are not that easy to understand on a good day, after all, who else would travel to a beach and set up a radio, before or in place of a barbeque?

But we keep on playing with different things, and keep fixing stuff that others would throw, so it's likely we will all be better of if things continue to go downhill. We will be able to charge our batteries and keep our gear running, and perhaps even help our neighbours at the same time.

It's this basic technical skill, this building and repairing stuff, the experimentation part of the hobby that sometimes gets missed, Yes we all want a nice new rig, but the homebrew, or kitset build, may not have the ideal filtering, and maybe the audio is a touch off, but if it still works, does it matter? If our license is for both communication and experimentation, then are we missing out, if we only get part of the fun?

(an older presentation on the 2.4 GHz project)

It's been on my mind since the trip south, Not having my soldering irons, and spare parts meant I had to forgo HF operations when the antenna revealed a design flaw, but in reality, I only needed to have been a little more prepared, and I could have put something else together, and this has made me start thinking of an alternative plan for use on the next trip (and some extra bits in a travel case), to let me build and fix as required. You know I'll be better prepared next time. But while others powered up generators our solar and engine charging options were enough to remain 100% self-contained for the entire 6 weeks, not one external 230-volt connection was made. That type of solar system can easily be duplicated by anyone who wants to and thanks to the use of Anderson connectors, the system is flexible and easy to change the connections as required, including having an outside station operating from the house batteries if required.

So am I worried about the coming years, No! But I also am left feeling that maybe we need to make this "experimentation part" of the Ham Radio ethos a little more front and centre, we need to encourage others to play, to try things, and of course help out too as required.

And then there is the helping part. As many of our members age a little more, it's not so easy to do the jobs we once did ourselves, and family members may not have the ability to provide the help we need. So, are we ready to help one another, In short, do we still have a community?

The real test of how we do as a club in the months and years ahead may not lie in our weekly meetings or our nets (as good as these are) but it may lie in how well, and how willing we are to help out. Working bees can become social events, and social events can become training opportunities, imagine a "parks on the air" activation, with a picnic in the park, and members socialising around the hobby on a Saturday afternoon … It's happened before, so can it happen again? You know it can.

Whether you are helping your club, your neighbour, or a fellow Ham, every time you help another, you promote ham radio and encourage others to make the world a better place. It takes so little but gives so much and you may be surprised by the benefits you receive in return.

So, as we each consider how we will run the club next year, perhaps you can ask how you can be involved, and what you can bring to make the club a better place for other members. If we all bring something small, it can quickly become a lot.

See you at the AGM

HAARP ANTENNA ARRAY IS BOUNCING RADIO SIGNALS OFF JUPITER

The High-frequency Active Auroral Research Program facility or HAARP is best known to Hams as a source of interference, rather than for any value, but it is currently in the midst of a wide-ranging science campaign that will see the facility bounce signals off the moon and Jupiter.

HAARP consists of 180 antennas designed to transmit signals into the ionosphere, which stretches from 30 miles (48 kilometers) to 600 miles (965 km) above sea level and is seen as the area where Earth's atmosphere meets space, according to NASA. The ionosphere plays an important role in radio transmission, as it reflects radio waves. Many satellites occupy this region of the atmosphere, which is heavily influenced by solar weather.

HAARP is in the midst of a 10-day research campaign that is the facility's largest and most diverse to date. Among the 13 experiments being conducted during the campaign are projects that will see signals bounced off the moon and Jupiter to test HAARP's ability to study objects far from Earth.

One of the most ambitious experiments being carried out during HAARP's current campaign is known as "Jupiter Bounce," or "Interplanetary Ionosonde,". The experiment will test HAARP's ability to bounce signals off the ionosphere of Jupiter, while also determining how well receivers at the University of New Mexico's Long Wavelength Array can receive the reflected signals. The experiment is "the largest active remote sensing operation in history," according to the UAF statement.

Another experiment, known as "Moon Bounce," will see signals bounced off the moon back towards receivers in New Mexico and California. These signals will be evaluated for their use in determining the composition of near-Earth asteroids for future planetary defence purposes.

Meanwhile, HAARP's "Making the Invisible Visible" experiment will "test if hot electrons are capable of producing the continuum (white) emissions present in STEVE airglow." STEVE, short for Strong Thermal Emission Velocity Enhancement, is an aurora-like phenomenon that occurs when charged particles from the sun interact with Earth's ionosphere.

"If we see that air glow and it matches the wavelength of light that we see from naturally occurring STEVE, that would give us indication that the hot electrons are playing some role in the formation of STEVE,".

The Strong Thermal Emission Velocity Enhancement (STEVE), photographed on Sept. 5, 2022, above the Keweenaw Peninsula in Upper Michigan. (Image credit: Isaac Diener)

The HAARP facility was constructed in 1993 and originally operated by several United States military research agencies, including the Defense Advanced Research Projects Agency (DARPA), Air Force Research Laboratory and Office of Naval Research. In 2015, ownership of the facility was transferred to the UAF

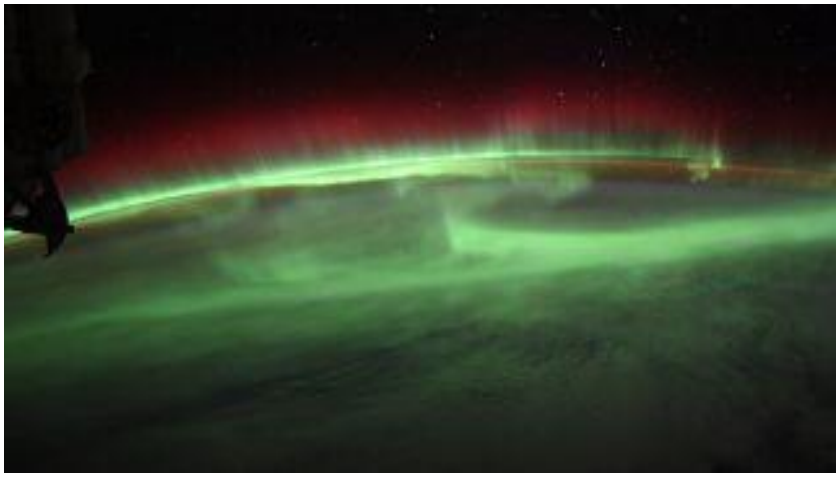
While primarily used for upper-atmospheric research, the facility has been the subject of numerous conspiracy theories (opens in new tab) in the nearly three decades since it was constructed. Some have accused the U.S. government of using the facility to modify the weather, trigger earthquakes, create "chemtrails" or even to broadcast mind-control signals.

While there is little to confirm any mind control, the interference from the high-powered transmitting site is well known to Amateur operators, and the high power and extensive antenna array has been known to impact other communication devices

Auroras Blasted a Hole in Earth's Ozone Layer

Auroras set off spectacular light shows in the night sky, but they are also illuminating another reason the ozone layer is being eaten away.

An international research team has found that the effects of isolated proton auroras caused a nearly 400-kilometre-wide hole in the ozone layer, which gaped right below where an aurora occurred. Most of the ozone vanished within about an hour and a half. The researchers had not expected nearly so much ozone to degrade in the wake of this phenomenon, they explained in a statement.

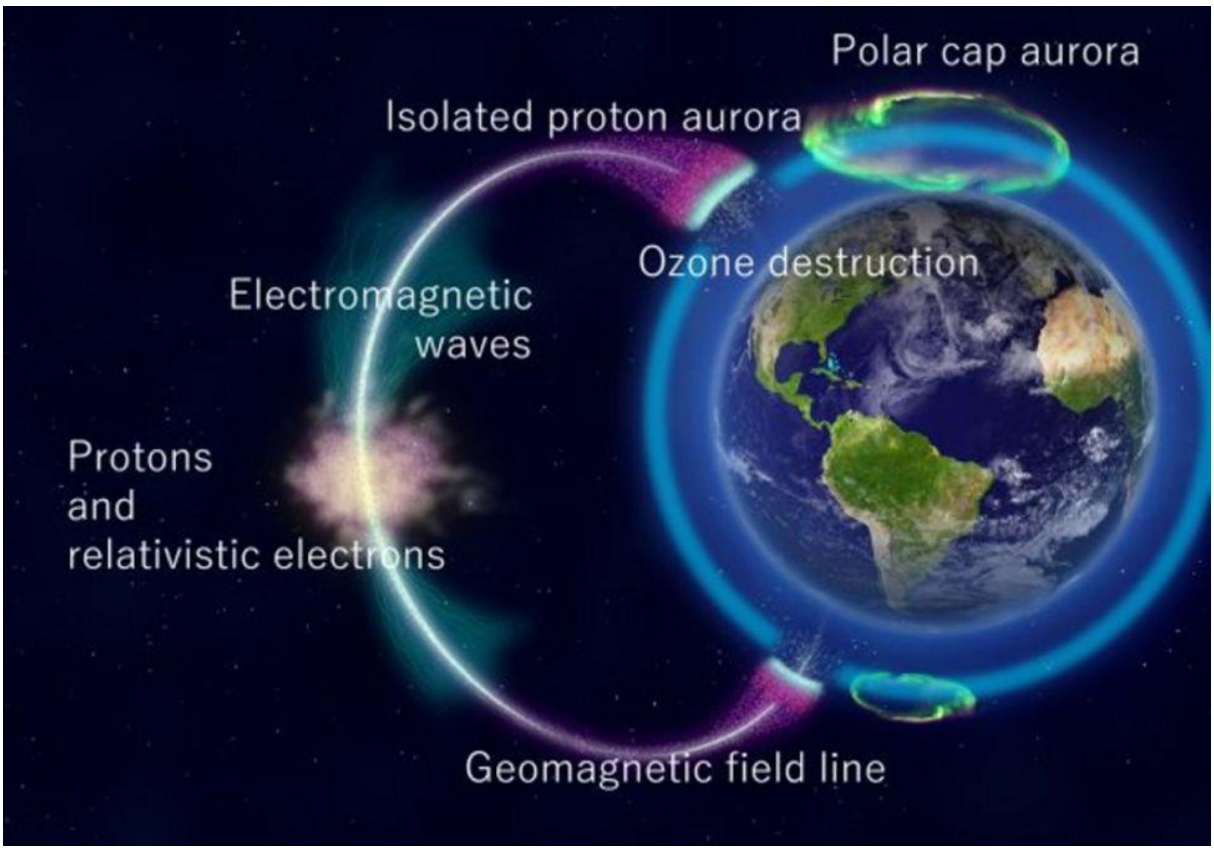


Isolated proton auroras may not be as flashy as the northern lights and their southern counterpart, but they are still visible to the human eye. An onslaught of plasma released by the sun brings highly energetic ions and electrons with it. Such particles end up caught in Earth's inner and outer Van Allen radiation belts, which keep the particles from bombarding the planet directly and turning it into a sun-blasted wasteland like Mars.

Particles that make it to the inner radiation belt can mess with Earth's atmosphere when they sneak into magnetic-field lines. The nitrogen and hydrogen oxides that are released by the particles' interactions with the atmosphere deplete ozone. However, this only goes for the ozone layer in the mesosphere; the more critical layer below, the stratosphere, remains unaffected. Isolated proton auroras affect Earth in other ways.

"[Electron fallout] from the Earth's radiation belt plays an important role in mesospheric ozone loss as a connection between space weather and the climate system," the researchers wrote in a study describing their findings.

Though the damage left behind in mesospheric ozone does repair itself more quickly than holes in stratospheric ozone, isolated proton auroras still influence changes in the atmosphere. Space weather can cause glitches in satellites and electrical infrastructure, and charged particles are a hazard to astronauts.



The findings will help scientists predict fluctuations in space weather that could possibly affect the planet's atmosphere.

The research was published Oct. 11 in the journal Scientific Reports.

THE CARRINGTON EVENT, WASN'T THAT BIG

Ask most amateur solar scientists about solar storms and their effect on the earth the Carrington event is sure to be mentioned.

Considered to be the largest solar flare event the Carrington Event was a large solar storm that took place at the beginning of September 1859, just a few months before the solar maximum of 1860.

In August 1859, astronomers around the world watched with fascination as the number of sunspots on the solar disk grew. Among them was Richard Carrington, an amateur skywatcher in a small town called Redhill, near London in England.

On Sep. 1, as Carrington was sketching the sunspots, he was blinded by a sudden flash of light. Carrington described it as a "white light flare" the whole event lasted about five minutes.

The event was a solar flare, and in the days that followed, the Earth experienced an unprecedented geomagnetic storm, with telegraph systems going haywire and auroral displays — normally confined to polar latitudes — visible in the tropics. Carrington put two and two together and realized that the solar flare he'd seen was almost certainly the cause of this massive geomagnetic disturbance. This was a connection that had never previously been made. The solar storm of 1859 is now known as the Carrington Event in his honour.

But Earth has been hit by radiation levels that were up to 100 times greater than this, according to a new study of spikes in radiocarbon stored in tree rings.

The prevailing hypothesis has been that these spikes, known as Miyake events — after the Japanese scientist that first discovered them — were caused by solar storms.

"There are six known [Miyake] events spanning nearly 10,000 years," said astrophysicist Benjamin Pope of the University of Queensland.

The most recent spikes occurred in 774 AD and 993 AD during the early Medieval period.

But new research by Dr Pope and colleagues, published today in Proceedings of the Royal Society A: Mathematical and Physical Sciences, reveals that the origin of these extreme bursts of radiation appears to be more complex.

While a radiation event of this scale wouldn't directly harm us, it could knock out everything we rely on in our modern world — not just for days, but months or longer.

Many species of trees, especially those in temperate climates, lay down a new ring each year that reads like a barcode of its age.

These markers of time also help scientists pin down when the tree absorbed radioactive carbon-14, produced by the interaction of high energy particles, caused by cosmic rays and solar storms interacting with the atmosphere.

Radiation coming from the Sun can vary throughout the solar cycle, but strong solar storms are four times more likely to occur every 11 years when sunspot activity peaks.

Dr Pope wanted to analyse all the studies of tree rings to find out how strong the Miyake events were, and when they occurred in the solar cycle.

He asked his undergraduate students, led by Qingyuan Zhang, to develop a program to crunch all the data ever published on the events and model how carbon had been locked up in tree rings as it cycled through Earth's biosphere for the past 10,000 years.

Data from the study showed that these mysterious radiation storms occurred roughly once in 1,000 years and happened right across the solar cycle, not just solar maximum.

Many of the spikes lasted longer than normal solar storms. At least one event in 663 BC lasted up to three years, and another in 5480 BC built up across a decade.

"At least two, maybe three of these events ... took longer than a year, which is surprising because that's not going to happen if it's a solar flare," Dr Pope said. “Perhaps it is reoccurring flares, maybe gamma bursts or some other way that radiation has been released.

"This is the most comprehensive study ever made of these events and the big result is a big shrug; we don't know what's going on."

Solar flares are also accompanied by aurora at the poles and sometimes, if they are strong enough, at mid-latitudes. Yet, despite the length and intensity of some of these events, there is scant evidence of anything out of the ordinary in historical texts around the time of the Miyake events, apart from a brief mention of a "red crucifix" in the summer of 774 AD in the Anglo Saxon Chronicles, and an aurora documented in 775 AD in the Chinese chronicle Jiutangshu.

ANSTO's Dr Smith said he was not surprised there was no obvious relationship with the solar cycle because solar storms can happen anytime.

But, he said, future analysis of the chlorine isotope, which is produced in higher quantities than beryllium in solar events, may shed more light on Miyake events.

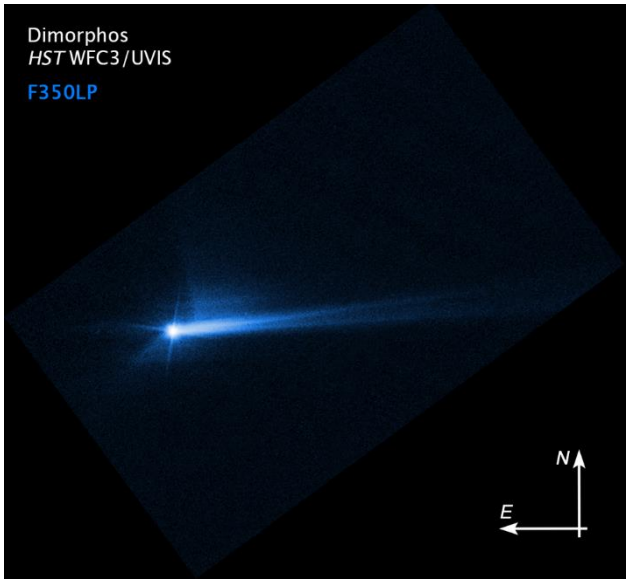
"We do need to really understand the severity of these events," Dr Smith said.

"If we had an event like that, even on the short scale … we'd be thrown into chaos." But, he said, future analysis of the chlorine isotope, which is produced in higher quantities than beryllium in solar events, may shed more light on Miyake events.

Once again, the more we learn about the sun, the more we learn that we don’t know very much about it at all

DID NASA'S "DART" WORK?

DART - Double Asteroid Redirection Test, impacted a remote asteroid in October, and the results have not only confirmed that the impact occurred successfully, and ejected large amounts of materials, but it did in fact alter the trajectory of the asteroid.



In fact, as the image to the right shows, the impact into Dimorphos not only altered the direction of the comment, it also ejected large amounts of material, and for a while the comet even had two tails,

Prior to DART's impact, it took Dimorphos 11 hours and 55 minutes to orbit its larger parent asteroid, Didymos. Since DART's intentional collision with Dimorphos on Sept. 26, astronomers have been using telescopes on Earth to measure how much that time has changed. Now, the investigation team has confirmed the spacecraft's impact altered Dimorphos' orbit around Didymos by 32 minutes, shortening the 11 hour and 55-minute orbit to 11 hours and 23 minutes. This measurement has a margin of uncertainty of approximately plus or minus 2 minutes.

Before its encounter, NASA had defined a minimum successful orbit period change of Dimorphos as change of 73 seconds or more. This early data show DART surpassed this minimum benchmark by more than 25 times.

"DART has given us some fascinating data about both asteroid properties and the effectiveness of a kinetic impactor as a planetary defense technology," said Nancy Chabot, the DART coordination lead from the Johns Hopkins Applied Physics Laboratory (APL) in Laurel, Maryland. "The DART team is continuing to work on this rich dataset to fully understand this first planetary defense test of asteroid deflection."

For this analysis, astronomers will continue to study imagery of Dimorphos from DART's terminal approach and from the Light Italian CubeSat for Imaging of Asteroids (LICIACube), provided by the Italian Space Agency, to approximate the asteroid's mass and shape. Roughly four years from now, the European Space Agency's Hera project is also planned to conduct detailed surveys of both Dimorphos and Didymos, with a particular focus on the crater left by DART's collision and a precise measurement of Dimorphos' mass.

Johns Hopkins APL built and operated the DART spacecraft and manages the DART mission for NASA's Planetary Defense Coordination Office as a project of the agency's Planetary Missions Program Office. Telescopic facilities contributing to the observations used by the DART team to determine this result include: Goldstone, Green Bank Observatory, Swope Telescope at the Las Campanas Observatory in Chile, the Danish Telescope at the La Silla Observatory in Chile, and the Las Cumbres Observatory global telescope network facilities in Chile and in South Africa.

Neither Dimorphos nor Didymos poses any hazard to Earth before or after DART's controlled collision with Dimorphos.

So does this mean that we have a solution that would allow us to divert an steroid from the many NEO (near earth orbiting) or rogue asteroids that are often mentioned as passing close to earth, or possibly even being close enough to hit us?

Sadly, the story of DART tells us otherwise DART launched in November 2021 and travelled 11 months to a known asteroid to perform the test, Most PHAs (Potentially Hazardous Asteroids) are tracked, but many are only discovered as they approach the earth, often with less than 7 days notice or a short as 24 hours. An earth-based interception mission could never be arranged so quickly, so Nasa has a planetary defence coordination office, and ESA (European space agency) have NEOCC which tracks all known space objects that either are known to pass close to the earth or are in orbits where the object could be dislodged by passing gravity to become a PHA. But even with this information, the notification of an object passing close to the earth is often too late to plan a ground-based mission.

What DART has shown is that the object that is sent to intercept an asteroid need not be an explosive device, like the Hollywood movies would have us believe, but instead, an impact can divert the object, so if an existing in space object could be diverted to intercept and collide with the asteroid (especially at an angle) the course of the PHA can be altered. The secret is to hit it fast.

It further showed that the operation (targeting) of the steroid can be performed by onboard software and hardware, in this case, cameras, to automate the targeting process. A lot more work will be needed before the lessons we have learnt will be able to produce any practical defence strategy, but the lessons should help us to one day be able to not only detect a threat but possibly respond to it.

In the meantime, we will have to keep looking up, and hoping that no nasty surprises are heading our way.

For more information about the DART mission, visit: https://www.nasa.gov/dart

But One Nasa engineer is not waiting, He has already started work on his own solution

And FYI – the gun is not a joke, and he was a NASA engineer – but its not for asteroids

SOME NETS – FOR WHEN YOU ARE LOOKING FOR SOME COMPANY

Day	Time (Local)	Freq (MHz)	Group
Sunday	08:00	3.750	Southern Net
	09:00	3.700	Bch 10. Franklin.
	09:15	3.755	Bch 65. Papakura.
	19:00	146.625	YL Net
	20:00	3.710	Bch 42. Titahi Bay
	21:30	3.595	Duran WIA Net.
Monday	19:30	3.757	Bch 12. Hamilton
	20.00	3.540	CW Practice Net
	20:00	3.605	Br 80. Hibiscus Coast
	20:00	Nat System	W.A.R.O
	20:30	3.870	O.T.C (Old Timers Club)
Tuesday	09:00	7.096	Ex Post Office Techs
	21:00	1.850	160m Net _ Ron ZL4JMF
	19:30	3.690	QRP ZL2BH
	20:00	3.581	CW improvers Net
Wednesday	11:30	3.850	SPAM Net
	20:00	3.660	Geek Net
	20:00	3.645	Bch 02. Auckland
	20:00	3.745	Bch 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	Bch 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
	19:30	3.650	Christian Fellowship
	20:00	3.760	???
	20:30	3.600	Ch 62. Reefton/Buller
Daily or Other	07:30	3.696	ZL2OA
	08:30	3.730	ZL3RP
	15:00	14.300	Pacific Seafarers
	17:30	3.760	Home Brew
	05:00 Zulu	14.183	ANZA DX Net
	18:00	7.115	VK7OB
	19:30	3.720	ZL1MO
	18:30	3.766	ZL3LE
	08:30/20:00	3.730	ZL3RP
	20:30	3.725	ZL2HN / ZL4RF
	21:00	3.677	Counties Net ZL2MA
	21.00	3.535	New Zealand Net (CW)

This is designed to be a living list, Please update whenever you are able:

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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
	ZL1ASN	Rolly Adams	021 042 7760
	ZL1RAH	Rodger Hanson	027 568 7659
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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
146.900 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)