AREC.info is the newsletter of Amateur Radio Emergency Communications, the public service arm of the New Zealand Association of Radio Transmitters. AREC.info is published monthly (except January).

Contents:

Cover:
Terence Shaw ZL1BTS and Kieran Robottom ZL1GER from North Shore Branch 29.

AREC Administration – Debbie and Annalise
admin@arec.nz, 04 939 2189

Newsletter Editor - Soren Low, ZL1SKL
newsletter@arec.nz, 021 813 541

Amateur Radio Emergency Communications

National Officers:

Chief Executive Officer
Don Robertson, ZL2TYR
ceo@arec.nz, 021 654 085

Regional Manager North
Andrew Brill, ZL1COP
RMNth@arec.nz, 022 354 6451

Regional Manager South
Lindsey Ross, ZL4KS
RMSth@arec.nz, 021 116 1686

Project Coordinator
John Murphy, ZL2XJ
projects@arec.nz, 021 0807 5075

National Training Advisor
Steve Davis, ZL2UCX
training@arec.nz, 027 436 1796

Health & Safety Advisor
Dave Wilkins, ZL1MR
hsw@arec.nz, 021 185 7903

Treasurer – Evan Sayer
Treasurer@arec.nz, 021 612 164

District Managers:

Northland/Auckland – Richard Gamble
DMAuckland@arec.nz, 021 729 270

Bay of Plenty – Karl Hunt
DMBOP@arec.nz, 021 167 0477

Central – Brian Purdie
DMCentral@arec.nz, 027 321 4470

Eastern – John Newson
DMEastern@arec.nz , 027 230 3642

Wellington – John Murphy
DMWellington@arec.nz , 021 0807 5075

Tasman – Paul Rennie
DMTasman@arec.nz, 027 458 9740

Canterbury – Geoff Chapman
DMCanterbury@arec.nz, 021 246 9128

Southern – Lindsay Eunson
DMSouthern@arec.nz, 027 432 5136

"When all else fails"

Many will be familiar with the statement "when all else fails"; the notion that, in the absence of fixed infrastructure, Amateur radio operators have the equipment, skills and passion to be able to communicate locally, nationally and internationally. Of course, this is the base premise of AREC Emergency Communications, and of like organisations around the world.

But it is not enough simply to have a battery, radio and antenna. We need to organise ourselves in such a way that – when the need arises – we can rise to the challenge and set-up the communications links and then quickly and efficiently pass messages from origin through to the intended destination.

Some will remember the "comms plan" from a year's gone by. The single document that includes national, regional and local "go-to" frequencies for AREC. Richard Gamble ZL1BNQ, AREC Auckland District Manager is making good progress as pulling the updated version together which will be ready for distribution soon.

However, just having some kit and a plan still isn't enough. In our groups and districts, we need to be creating scenarios where we can come together and practise setting up and using our equipment and passing messages. Andy Brill ZL1COP, our Northern Regional Manager has a number of scenarios that he has used with his local group and is willing to share if you need some inspiration to get started.

As we know, passing voice messages has its limitations, especially when there is a lot of information to send. So, it is great to see groups experimenting with sending data; including using Winlink and the Fast Simple QSO (FSQ) system developed by Con Wassilieff ZL2AFP and Murray Greenman ZL1BPU. I have seen examples of photographs sent over FSQ – as they say, "a picture is worth a thousand words."

In this issue, you will read about how Tasman AREC manned Marlborough Emergency Management's Emergency Operations Centre during recent severe weather which saw power cuts, loss of communications as well as communities isolated as the event unfolded. The Marlborough team have a great relationship with their Civil Defence organisation and regularly work together to support their community. Many volunteers were out during the event, including volunteer fire fighters, LandSAR teams and others.

I often hear people talking about AF8; the knowledge that an "Alpine Fault Magnitude 8" will hit the South Island within the lifetime of ourselves or our children. However, the focus here is that while we can't predict when the "big one" will hit, what we can do is prepare for them.

This has started a number of discussions locally and nationally – and has highlighted the impact when we lose power, water and communications (amongst others) for an extended period. One group, the Alpine Fault Communications Trust, in advocating for households and communities to use Personal Radio Service (PRS) radios for their local communications and Amateur radio for long distance communications. In the same way as AREC needs to exercise so we are ready; AF8 is all about preparation.

Management Changes

Firstly, I would like to farewell Daniel Erickson from the Deputy District Manager Southland role.   Daniel has had to give up the role due to other commitments and I would like to thank him for the contribution he has made. He has also been the AREC representative on the Radio Frequency Users Association of New Zealand (RFUANZ) committee for the last 12-months. Steve Davis ZL2UCX has been appointed to the committee for the next 12-month period.

Secondly, I would like to welcome Wilbert Goossens ZL2WEG to the new position of AREC Rik Advisor. You will read more about Wilbert and his role in this newsletter.

Don, ZL2TYR

Chief Executive Officer, AREC

North Shore AREC – UHF Coverage Survey for a Community Resilience Group
Andy Brill ZL1COP

As part of AREC support for the emergency preparedness activities of local community resilience groups, North Shore AREC conducted a radio coverage survey of the Greenhithe area. The objective was to establish if UHF handheld radios would provide reliable communication between the local community hall (where the Greenhithe Emergency Resilience Group would establish their base in the event of a disaster or other emergency), Neighborhood Watch street contacts and other volunteers throughout the entire suburb.

Greenhithe is a community of about 3,000 households located on the eastern side of the upper Waitemata Harbour, Auckland. There are two road access routes to the suburb, one from the North Shore in the east via Upper Harbour Highway, and the other from Hobsonville in the west via State Highway 18 and the Upper Harbour Bridge.

The Greenhithe Emergency Resilience Group is made up of leaders from the local Fire and Emergency Service, Community Trust, Residents Association and Primary School.

A computer-generated UHF coverage prediction was completed using Roger Coude VE2DBE's excellent Radio Mobile online application. This free resource can be found here https://www.ve2dbe.com/rmonline_s.asp The predictions simulated 1-watt and 5-watt handheld radios at each end of the path. They suggested that coverage would be adequate with the exception of a few low signal areas.

In order to validate the predictions, it was decided to conduct field testing of the area to compare the computer simulation with real world observations.

Above: Radio Mobile map showing predicted coverage around Greenhithe using 5-watt PRS radios and a base antenna at 1.5m above ground level.

The Operation

On the morning of Saturday 17 July eleven members of North Shore AREC travelled to Greenhithe equipped with AREC 477 MHz PRS radios and 2-metre amateur equipment to run some tests.

A base was set up at the Community Hall equipped with 5-watt PRS base station and a 2-metre VHF radio operating on the Waitakere 146.700MHz repeater for coordination and backup. The base station PRS radio used a whip antenna within the building to provide a worst-case scenario for the test.

Handheld radios used in the field were Motorola GP328 units with a nominal output of 4 watts. The base station was a Tait TM8115 with 5-watt output.

AREC members formed four mobile teams, each with a driver and navigator/operator and spread out around the area to test communications. A total of 88 points were chosen throughout the Greenhithe area, and each team was allocated their own list of points to test.

At each designated point, the teams contacted base and exchanged reports specifying the signal quality in each direction. The standard reports were:

Signal Quality	Abbr	Explanation
Loud and Clear	LC	Signal is fully quieting with no noise. Fully understandable
Good Readable	GR	Signal has some noise but does not affect understanding.
With difficulty	WD	Poor signal, difficult to understand.
Unreadable	UN	Signal detectable but cannot be understood.
Nothing Heard	NH	Nothing heard.

Signal reports at each location were tabulated and subsequently compared with the computer predictions.

Observed signal quality - 4-watt handheld PRS in vehicles. 5-watt PRS base radio with indoor whip antenna

Green = Good/readable or better. **Red** = readable with some difficulty. **Black** = Unreadable
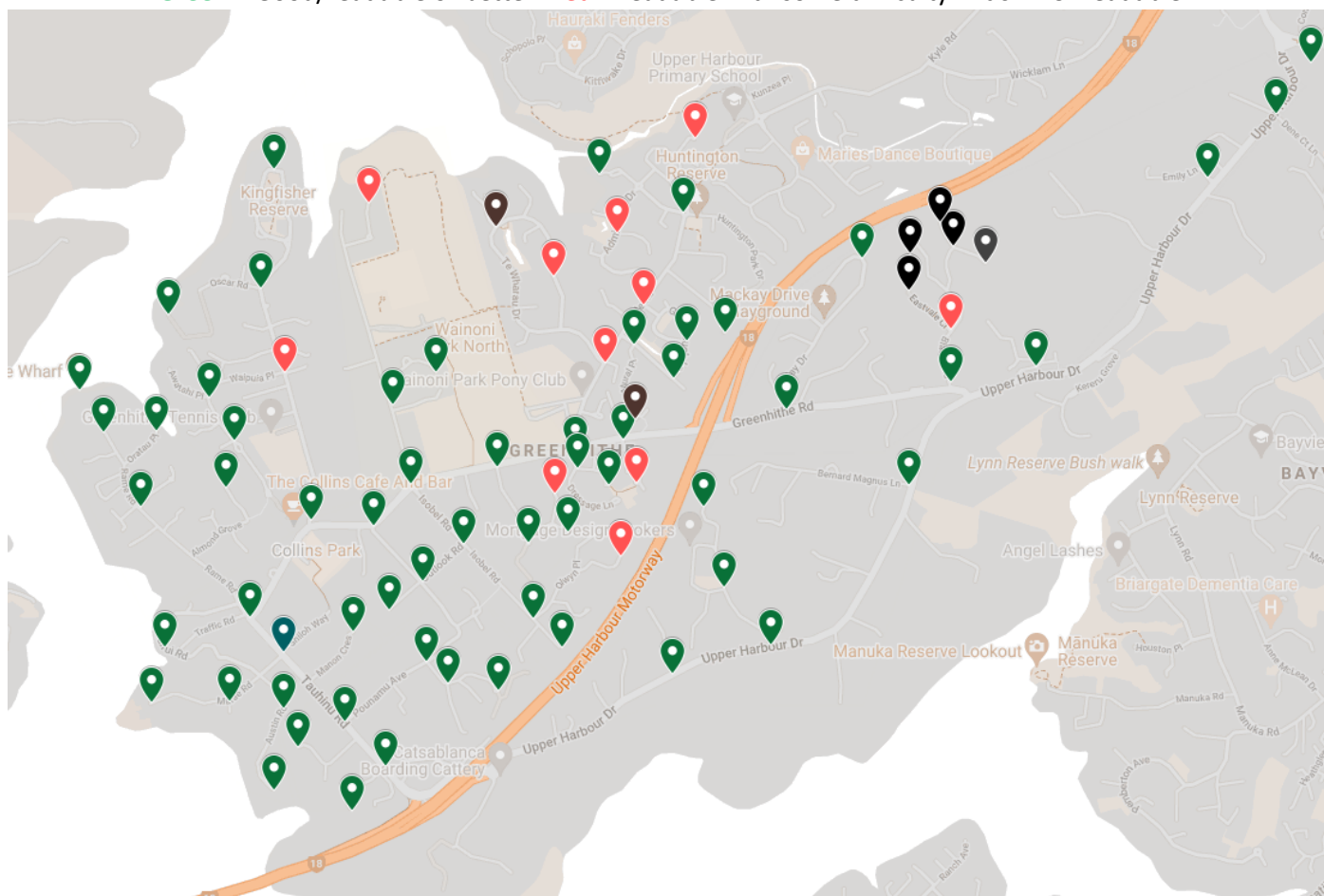
Results

Two coverage predictions were created using the Radio Mobile online application; one for a transmitter power of 1-watt and one for 5-watts, both with antenna heights of 1.5 meters above ground and assuming zero gain antennas

The actual results of the field survey fell somewhere between the two predictions, with some dead spots observed in areas predicted by the 1-watt predictions. There was a good correlation between observed and predicted signal levels.

The equipment used did not appear to provide as good coverage as predicted for 5-watts, but better than predicted for 1-watt.

Factors which may account for the discrepancy are that the radios and antennas used at both ends of the path were located in either vehicles or a building, and a not in free space as assumed by the software.

Two main areas of poor coverage were identified.

Following the operation, a further prediction was completed assuming a base station antenna mounted at 8 metres above ground at the hall

This prediction suggests that a pole mounted external antenna at base would provide adequate coverage into all areas, including the observed dead spots and allow acceptable comms throughout the Greenhithe area.

Conclusion

The Radio Mobile application seems to provide adequate predictions as long as conservative power levels are assumed when setting up the software.

AREC is in discussion with a number of local community resilience groups in Auckland to provide support with their communication needs. Having validated the Radio Mobile software predictions, we are now more confident in using this application for comms planning in other areas.

In addition, the practical survey provided a great training opportunity for some of our newer members to get to grips with field operations, setting up a base, and use of AREC procedures.

We did have a couple of non-technical learnings from the operation. These related to the legibility of handwriting, and to the ability of members to accurately pronounce and spell Māori street names and locations.

These skills should not be written off as being "PC" - they are key requirement for us as specialist communicators. A bit of work needed here!

Anyway – great way to spend a wet Saturday morning. Many thanks to all who participated.

It also showed that PRS radios are an excellent resource for local communication within communities like Greenhithe.

Above: Predicted coverage Greenhithe – PRS 5-watts. Base antenna 8m AGL
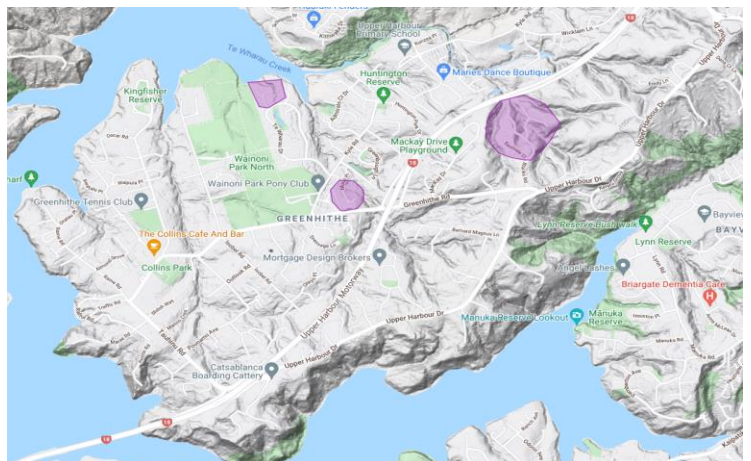
Above: Observed low signal areas from the exercise.

Above: The testing team: Dave ZL1QV, Dennis ZL1TAY, Allan ZL1TUQ, Philip ZL1PSH, Kieran ZL1GER, Andy ZL1COP, Terence ZL1BTS, Kevin ZL1KG, John ZL1CD, Vaughan ZL1VH, Graham ZL1GMB.

Photo: Ettiene Shaw

Training & Competency Framework   _Steve Davis ZL2UCX_

As most will be aware from reports earlier in Break-In, this newsletter, at the national AREC Forum, and maybe from, your Regional or District Manager or Group Leader, as a part of the new initiatives we are working on a new training and competency framework for AREC.

A large part of the reasons for the funding we are receiving from NZSAR are to ensure that we are able to provide the specialist services needed by our SAR partners in a safe manner. So to ensure this we are required to build a suitable competency framework, along with other initiatives such as Health, Safety and Wellness, which will also have training components.

The training and competency framework is being built on earlier work around member levels started by David ZL1MR, this forms the foundation of the framework. Quite a bit of discussion went into developing the initial work into a series of levels that members can progress through, to a level that they are comfortable/able to operate at, including options outside for those wishing to be in a supporting role.

The next stage has been to develop this series of levels into a set of modules for each of those levels across a number of strands or streams. Most of the content will be in the Core Stream, which is core to most of what we do, but with some modules specifically attached to SAR and CDEM streams. There will also be some modules developed at local levels to meet local requirements, some guidance will be provided for these, but they will largely be managed at a local level.

Work is continuing to develop a more detailed level of the outcomes or detailed competencies for each of these modules.

While some of the modules will be completed by attending face to face training, either to be provided internally, or in some cases provided externally, much of the theory-based material will eventually be made
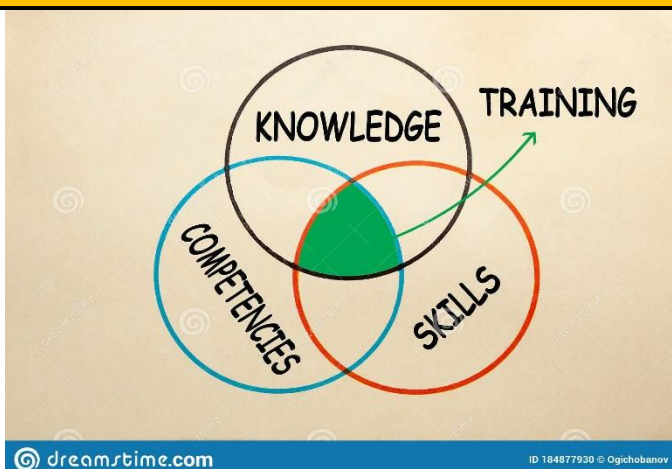
available as an on-line self-paced module. Practical elements will then be observed at face-to-face training sessions or at exercises or operations to confirm competency.

While there will be some work for all members to work through some of the material it is not intended to be onerous, but to help confirm competency and provide updates and refreshers.

The foundation and framework and some of the tools to allow us to deliver this on-line have taken longer to come together than envisaged. It is early days, but over time materials will be update or developed and made available in various formats including face to face both from national and local delivery, and we will be looking to develop local training champions around the Districts.

To help confirm the training needs and identify strengths, weaknesses, and gaps we will be sending out a survey to all members shortly. We really need all members to participate fully in the survey to help build the full picture of what is needed. The survey will be built on questions around the Member Level structure and the Modules Competency Framework, so please review these ahead of time.

The following documents are PDFs that can be downloaded and viewed on your computer. They are quite large to view so you may need to zoom into different parts of them. You will need a PDF Reader, which are freely available (see https://get.adobe.com/reader)

The current version of the top-level Member Levels structure can be viewed at:
http://www.arec.net.nz:8080/ARECMemberLevelCompetenciesFrameworkv1.03.pdf

The current version of the modular competency framework can be viewed at:
http://www.arec.net.nz:8080/CompetencyFrameworkv0.18.pdf

AREC Tasman   *Paul Rennie ZL2RE*

This winter has seen a number of severe weather events around New Zealand. During July, there was an event which saw a State of Emergency declared in Marlborough.

AREC members manned the Marlborough Emergency Management operations centre receiving information and passing messages over the regions radio networks.

Right: Graham McKay ZL1BTS and Paul Rennie ZL2RE on duty at Marlborough Emergency Management.

Photo: Helen Harris ZL2HH

SARTrack Training
Members of Blenheim and Nelson AREC recently attended a SARTrack training course facilitated by AREC Training Advisor Steve Davis and Stefan Lerb from Motueka LandSAR.

The training gives participants the skills to set-up and use the SARTrack application, this is widely used by LandSAR around the country.

Tasman District Manager Paul Rennie ZL2RE said "getting the members together for this training is something we have been planning for a little while, we had an excellent turnout and Steve and Stefan did a great job of sharing their knowledge to the participants."

Above: Members of Marlborough and Nelson AREC attend the SARTrack training at Blenheim.

Photo: Grant Simpson ZL2BK

Meet the Team: AREC Risk Advisor, Wilbert Goossens ZL2WEG

AREC CEO Don Robertson recently announced the appointment of Wilbert Goossens ZL2WEG to the newly-created role of AREC Risk Advisor.

"As part of our strategy and organisational maturity we have a need to identify and mitigate organisational risks. To assist with this I have established a new role of Risk Advisor reporting to me" explains Don.

"Wilbert has extensive experience in Risk management and will be able to lead us through the process of identifying and managing our organisational risks."

Wilbert has held his license since 1971,and now has a focus on digital modes and mobile. "Lots to lean, lots to do!" say Wilbert.

Professionally he has had a career in the IT industry, starting as a software developer in the armed forces. "Currently I have a risk and assurance role in a big government department IT department. I have had a number of different interests over the years most recently in the ballroom dancing world from which I have retired. I like the AREC because it ties my hobby and interest to a social service. I'm hoping to make a contribution to getting things running smoothly. My view of risk and risk management it that it is powerful in helping managers make decisions in the face of uncertainty There is lots of it about!"

Welcome to the team Wilbert!

Emergency Management Southland – Radio Upgrade
Daniel Erickson ZL4DE

During June, Southland AREC members Bevan McNaughton ZL4BMC, Shannon Stanley ZL4SH and Daniel Erickson ZL4DE set-up new Tait TM9315 base radios for Emergency Management Southland. Daniel commented "Emergency Management Southland understand the role of radio in their operations and are investing to ensure the capability remains into the future. We work closely with them for the good of our communities."

AREC PPE Update   *Andy Brill ZL1COP*

By now, most members who have been identified by Group Leaders as SAR responders will have received their initial PPE rollout of 5-in-1 wet-weather jacket, high visibility vest, polo shirt, beanie and sunhat. All members should have received their log-on details to the NZ Safety Blackwoods site which enables them to purchase AREC gear as well as access trade pricing on the large range of safety and general equipment available.

The next phase will be organising the signage and safety equipment for active branches (warning signs, barrier tape, cones, first aid kits etc), followed by issue of some funded clothing items to other categories of membership as the budget allows.

The issue of additional clothing will happen once the new online membership application is operational and groups have recorded the operational capability of their members on the system so that we can identify which members are entitled to AREC funded equipment.

In the meantime, members may purchase any of the branded items, but reimbursement won't be available until we have recorded each person's membership category.

Above: Gerry Hughes, AREC Eastern Deputy District Manager, testing out his new gear while completing radio coverage checks ahead of Rally Hawkes Bay. *Since these photos were taken, Yellow AREC beanies have been delivered [Ed.]*

Situations Vacant

AREC Regional Manager

AREC currently have a vacancy for the role of Regional Manager for the Lower North Island, Central Region.

As one of three, the Regional Manager provides leadership and direction to the District Managers, provides coordination with and between districts within the assigned geographical area.

If you would like more information or are interested in this role,

please contact Annalise admin@arec.nz

Health, Safety & Welfare   *David Wilkins ZL1MR*

Some of you will have seen the new AREC personal protective equipment (PPE) that has been sourced using SAR funding and coordinated by Andy Brill. I recently had a discussion with a member around "why do we need this stuff". I thought I might share my reply.

AREC PPE has two purposes; the first is to identify us as a member of AREC, and helps build our "brand". The second is because it *helps* keep you safe. I say "helps" on purpose - a high-visibility vest on its own won't stop you being run over or give you the authority to stop all of the traffic on Wellington's Courtney Place. It gives others a sense of who we are and why we might be doing at that location or event.

Remember PPE is the last in a chain of defensive measures we can take to reduce the adverse effects of hazards. Ideally, we want to eliminate or manage the problem away. Since we cannot click our fingers and make all hazards disappear, like the rain and poor visibility, well that's when we need the PPE.

But it also helps keep other safe. Antennas (as an example) are a hazard – there is the pole, cable and often guy wires; using orange cones and visible tape means that others are less likely to walk into or trip over it (not a good outcome for them or you).

That doesn't mean you should be chopping up your AREC vest to make streamers to alert people to temporary hazards. Be prepared and get a roll of safety tape for your Group ready box.

In a work sense – most people are very attuned to health and safety; organisations have policies, processes, meetings, audits and other things to keep it fresh. Where the lines become blurred for us is that this is our hobby – we *want* to do this. So sometimes we don't think through the what might happen because we are so keen to get on with our task.

This is the time to remember the AREC Safety Dance:

Stop – Think – Plan – Communicate - Act.

If you want to reach out any anytime, drop me a note or give me a call.

David Wilkins ZL1MR
AREC Health &Safety Advisor

Reporting

If you have any feedback from the frontline that may help others, or have an incident, near miss or injury to report please email the details with your contact number to HSW@arec.nz

Health and Safety is the responsibility of us all

Remember to:

STOP – In your mind you need to be constantly pausing and evaluating no matter the task or the location.

THINK – You need to think about what you see. Identify Hazards and associated Risk (the chance of it going wrong)

PLAN – Talk to others, compare notes, make a plan

COMMUNICATE – Brief the plan and plan to brief others as they arrive.

ACT – Execute the plan, monitor and review progress.