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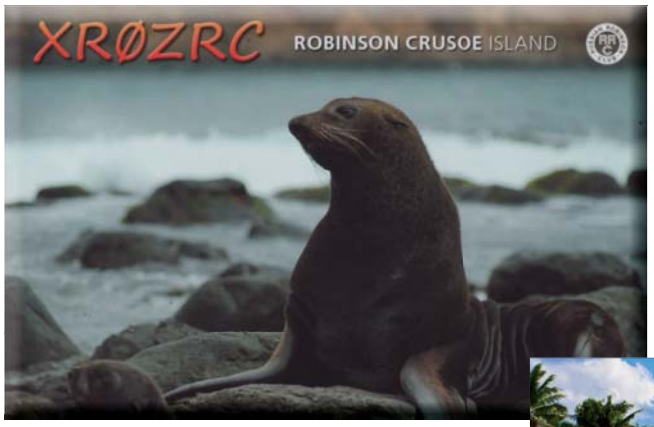

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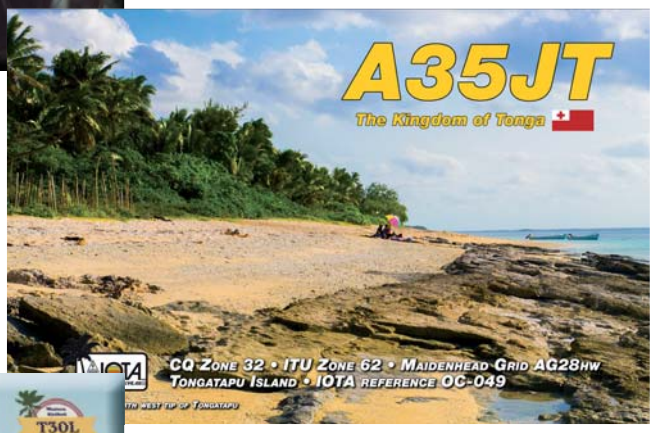

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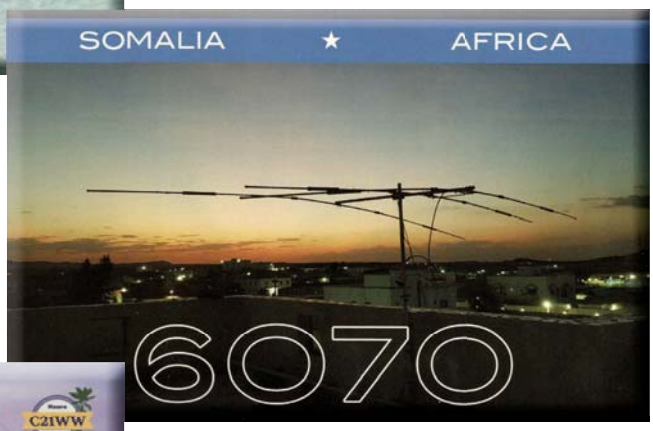

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Table of Contents and Imprint

Next

EUDXF newsletter MAY 2020

Imprint

EUropean DX Founation e.V. — **President:** Dominik Weiel DL5EBE), Kirchweg 13, 49356 Diepholz, Germany, e-mail: president@eudxf.eu. **Boardmember:** Ronald Stuy (PA3EWP), Hans P. Blondeel Timmerman (PB2T), Jan B. C. Harders (DJ8NK), Kenneth Opskar LA7GIA. **Advisor:** Prof. Dr. Achim Rogmann (DF3EC).

Officemanager: Alex van Hengel (PA1AW). **Standmanager:** Jan Stadman (PA1TT/DJ5AN). **Cashier, Office DL and Printing Support:** Robert F. Lörcks (DL1EBV). **Webmaster:** Alex van Hengel (PA1AW).

As always a new year means that the **membership fees** are due. Please transfer your **25 Euro** or more as soon as possible, preferably to **our Bank Account:** Volksbank Kleverland: IBAN: DE65 3246 0422 0205 1830 19 BIC: GENO DE D1KL L.

I trust that members living in the Euro zone will use this account only, because this implies the least costs for our foundation. Those who do not live in the Euro zone may also use PayPal to **cashier@eudxf.eu .**

Dear EUDXF Members,

the Board of Directors wishes to you and your families a very Happy New Year 2020! We hope that you spent beautiful relaxing days in the midst of your Dearest and Nearest and that you even may have found exciting moments behind your radios. Stay healthy, be successful in all aspects of life and let your logs be filled with lots of interesting DX in 2020! To our DXpeditioners we wish that you reach your destinations safely, that you bring home wonderful impressions from the regions and people you visited and that your efforts will be much appreciated by the DX community!

2019 was a good year for EUDXF in all aspects. We could register a steady increase of new members and we are very glad about this positive development. Thanks to our members, a series of successful DXpeditions could be sponsored such as XRØZRC, E51HMK, VP6R, A35JT, T3ØGC, D68CCC, VK9N, 6O7O, ZK3A, T3ØL, C21WW, TO8ØSP, TX7T, 5KØK and 3D2AG/p. We hope that these DXpeditions helped to increase your bandpoint score! This newsletter contains a nice collection of DXpedition reports sponsored by EUDXF which you hopefully find interesting. Enjoy reading!

The EUDXF was well presented during the Ham Radio 2019 hamfest in Friedrichshafen and on the DNAT in Bad Bentheim where during the AGM the new Board of Directors was elected. The 33EUDXF activity month November resulted in many award applications and a good visibility of our organisation on the air. On the 1st of December the annual EUDXF workshop took place with the BoD and officers participating where the targets for 2020 were discussed, the deliverables for DXpeditions reviewed and the funding criteria adjusted. On behalf of the BoD, I would like to thank all members who contributed to the overall successes of EUDXF in 2019!

For 2020 we have already decided to fund the upcoming VP8/VP8DXU, T3ØET, TI9A and W8S DXpeditions and we expect more applications to come. For the first time, EUDXF will be represented on the Ham Vention in Dayton, Ohio, by Achim DF3EC, Baldur DJ6SI and Dieter DJ9ON. Traditionally, EUDXF will again participate in the Ham Radio Hamfest 2020 in Friedrichshafen, with a desk on the DX-Plaza. The DX dinner this year we try to relocate to another place as a reaction to the complaints received due to poor service.

The highlight 2020 for me personally will be the upcoming W8S DXpedition to Swains Island which will be my last DXCC country. As I missed the previous operations for QRL reasons, I am planning this time to fly home to Germany to work this very last missing one. It is a satisfying feeling to know that the upcoming W8S DXpedition will be conducted by highly skilled EUDXF members who know how to work EU – a big thanks to them for activating this rare DXCC entity!!!

Best 73s and good DX from Wolgograd,

Dom R4BE - DL5EBE

Dear EUDXF Members,

According to our statutes, each member is obliged to pay at least an annual fee of € 25,00 €. The contribution is due upon admission and then at the beginning of the calendar year. The Board can allow a different alternative payment method.

During the last board meeting on December 1st 2019, the following decision was made based on the proposal of the treasurer:

If you become a member, the membership fee has to be paid latest after 12 months (e.g. if you join on November 12th 2019, the next fee is due on November 2020 at the latest). One month in advance, members will receive an email with the contribution invoice.

For me as a treasurer, this handling makes it easier for me and certainly for you as a member, too.

Members from EURO / SEPA countries please transfer the fee to our account at Volksbank Kleverland, IBAN: DE65 3246 0422 0205 1830 19 - BIC / Swift: GENO DE D1KL L. However, if you would like to pay via PayPal, please note that you take over any PayPal costs. Within the EU you can use the "Send money to friends and family" function to avoid PayPal costs. Members from non-EURO countries please pay via PayPal to cashier@eudxf.eu.

Special thanks to those members who have already paid their contribution (or even more) for 2020.

XRØZRC — The Robinson's Dream

BY VASILY V. PINCKUK, R7AL

Everyone knows the story of Robinson Crusoe, a mariner from York, who lived many years on an uninhabited island. Much water has flown under the bridge since that time, but those brave and desperate people who travel to remote and inaccessible islands we call Robinsons.

As an active IOTA-activator and "Russian Robinson Club" member, I was dreaming to visit Robinson Crusoe Island, located more than 600 km off the coast of Chile, for a long time. In summer 2018, I shared this idea with my good friends and companions Vasily, RA1ZZ, and Vlad, RK8A. They also like it very much and we immediately started the planning and preparations for the DXpedition to this legendary island, which is part of Juan Fernandez archipelago and a separate DXCC entity, ranking on place 68 on Club Log's Most Wanted list (March'2019).

I contacted Marco, CE1TBN, a well-known Chilean IOTA-activator, who agreed to help us with the license and logistics. We applied for the special callsign XRØZRC.

Travelling to Robinson Crusoe is quite expensive, but it's not the main problem. All the flights to the island are carried out on small 12-passenger aircrafts with limitation of only 10 kg of baggage allowance per person, and no excess baggage at all. But our plans were not for a holiday-style activity, but a full-scale DXpedition with high-power stations and effective antennas for all HF bands from 160 to 10 meters.

There is an alternative way to reach the island on board of the ship "Antonio", which brings cargo and passengers to Robinson Crusoe island from Valparaiso port. "Antonio" has seats only for 12 passengers, but islanders have a strong priority. Marco got in touch with the "Transmarco" shipping company officials and they promised to reserve two places for our team-members. So the final plan was to split the team. The first team members would fly to the island by the plane with a minimum set of equipment and the second group would go by ship with all the remaining cargo.

We formed the team, which consisted of five operators: Leo, RW9JZ, Vlad, RK8A, Wlodek, SP6EQZ, Alexei, RL5F, and me, Vasily, R7AL. Sadly, Vasily, RA1ZZ, was forced to cancel his participation in the DXpedition for personal reasons, but on the other hand, Dima, RU3GF, expressed the desire to join us. He did not plan to fly to the island, but really helped us with luggage delivery and all other organizational issues in Santiago and Valparaiso.

XRØZRC team before leaving from Moscow to Santiago
(L-R: Vlad, RK8A, Aleksei, RL5F, Vasily, R7AL, Dima, RU3GF and Aleksei, RW9JZ)

The Russian part of the XRØZRC team met at Sheremetievo International Airport in Moscow on 6th of March 2019. Wlodek started from Warsaw a day later.

The almost 24-hour flight by French Airlines from Moscow to Santiago was successful. At the airport we were met by Alejandro, CE3ARU, who picked us up and brought us to the hotel with his truck. Dima asked Alejandro to use his mobile 2 meter station and made a dozen QSOs as CE2/RU3GF. There are many hams in Chile, but most of them are not interested in DXing and prefer to chat on 2 meters or 40 meters.

The flight to Robinson Crusoe was scheduled two days later, so we spent this time to discover the capital of Chile. Santiago is a beautiful and clean city with nice architecture, lots of green parks and good people. Everything was a bit complicated by the fact that almost no one spoke English and simplest things caused difficulties.

SP6EQZ, RL5F, RW9JZ boarding on the plane to Robinson Crusoe

Our "flying" part of the team went to the island on March 9, as planned. The remaining members headed to Valparaiso, located at the coast of Chile with 200 kg of DXpedition luggage. In Valparaiso we met with Matthias, CE2LR, and Dale, CE2SV, one of the most active and famous hams in Chile. Dale invited us to his home – a great apartment on 21st floor with open terrace.

On the next day, Matt introduced us to a great ham family – Francisco, CA2VMP, and his mother Marcia, CA2BRJ. They helped us a lot in delivering our cargo to the shipping company, all kinds of negotiations, buying the tickets, and much more!

The ship went to the island within two days, but we had an unpleasant surprise – they said they could only provide one place onboard! We were forced to quickly change our plans. Vlad returned to Santiago and flew to the island by plane and I stayed in Valparaiso and finally got onboard of the ship.

Valparaiso city – the biggest port in Chile

Dima, CE2/RU3GF, in the shack of Dale, CE2SV

The ship "Antonio" carries cargo and passengers to Robinson Crusoe Island

The voyage to the island took 55 hours and was very exhausting due to rough sea The ship anchored in Cumberland Bay at around 15:00 h on March 17th. Here it was – the legendary Robinson Crusoe Island!

Vlad, RK8A, and Wlodek, SP6EQZ, met me on the pier. I was really happy to be on the island finally, after ten days since arrival to Chile. I was eager to see how the situation looks like on the island. Originally, I booked two separate bungalows, not so far from each other to avoid interferences among the stations – same as we did last year on Mozambique Island (C96RRC). When the team arrived at the settlement, they saw that there was no access to the shore due to the construction of the promenade and new sidewalks. Of course, nobody told us about this when booking. Thus, the first bungalow turned out to be unsuitable for us due to lack of space for antennas. But the second one was really good, with a large area in front of it and some space behind. Our bungalow consisted of a hall, two bedrooms and a kitchen and was quite comfortable.

One of the two main stations equipped with Elecraft K3 and Expert 1.3KF-A amplifier was installed in the hall, the other Elecraft KX3 and same linear model was set up directly in the kitchen. The third station was also placed in the hall, but mainly used for FT8. Later, we added a second FT8 station, both with ICOM IC-7300 transceivers.

Of course, I could not wait and tried to work on 17 meters CW. The pile-up was great but I was upset because of the terrible S5 to S7 noise level which was too much for HF and made reception very difficult. Our team members told me that this was not the biggest problem. The QRN-level at daytime was not stable and changing from S7 to S0 from time to time, which would allow to receive normally. The biggest issue was a wide S9 QRN, covering completely all bands starting at around 18:30 h, just during the local sunset and lasting until the sunrise!!

All potential noise sources inside the bungalow were checked, including all power supplies from radios and laptops, internal lamps etc., but the QRN was not detected. So, I suggested checking the lamps on the street and the external illumination around our hotel. We were QRV before the QRN was turning on at 18:30 h and then spent half the night trying to find something, but nothing at all.

On the next evening, me and Leo, RW9JZ, made a simple portable antenna and went to other places of the settlement with the KX3, powered by batteries to check the noise levels.

Cumberland Bay (View from North)

We were ready to change the current QTH, but with great regret we found that the QRN-levels on central and western sides of the settlement were even higher than at our present QTH. The best way out was to find a good place outside of the settlement and set up a portable radio camp. Of course, we were not ready absolutely for the portable activity and it was necessary to find tents, a generator, fuel tanks and other equipment.

It should also be mentioned that Alexei, RL5F, urgently had to leave the island on March 19th and fly back to Moscow for business reasons. So, there were only four of us left on the island. However, we needed to keep at least two stations

Cumberland Bay (View from North)

running at the same time, building the antennas, fixing the different problems, cooking and so on. Therefore, we abandoned the idea of a portable operation and tried to improve our receiving conditions at the present QTH.

Checking the lamps outside of the bungalow

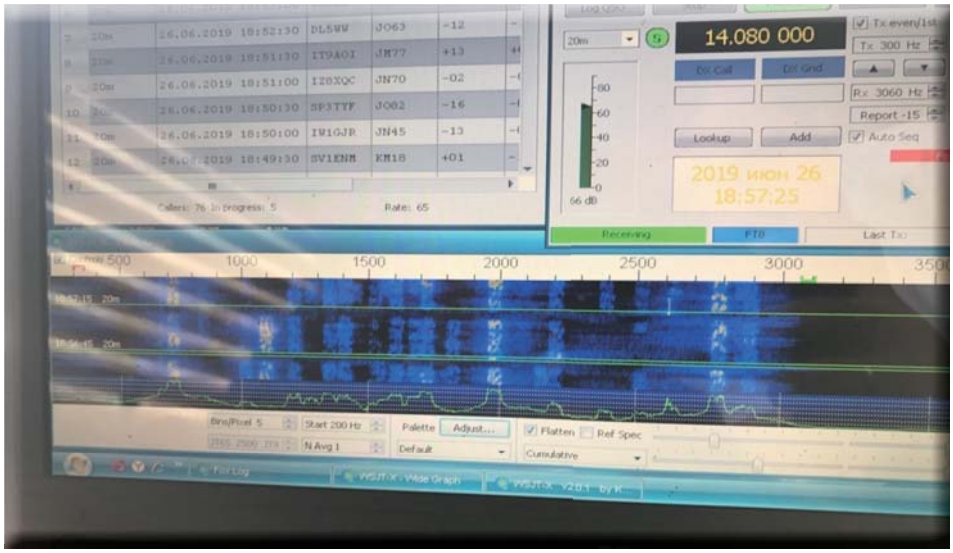
The only way out was to try different types of antennas. We hoped that loops would work better under these noisy conditions and so we built full-wave loops for 40 and 80 meters to try as receiving antennas. It was a big challenge to hang up the 80 meters delta-loop, but Vlad, RK8A, our SOTA-man, climbed the tall hill behind our QTH and fixed it between the high trees. It was much easier to install the 40 meter loop because of its smaller size, but it also needed time to hang it up. Looking back, I must say that it brought good results and reduced the noise level on 40 and 80 meters.

High noise levels were not the only problem. One day we had faced another one – the horses! During the season, the islanders used them to ride tourists around, but now they walked around wherever they wanted. One of them hooked a guy and broke the pole of the 30 meter phased vertical. It was good that we had two spare fiberglass poles so that we could repair the antenna. But on next day the situation repeated and we lost one more pole. Something needed to be done and we build protective shields around our poles using various items which we found in the garden.

Horses near our antenna field

Vasily, R7AL, operating SO3R

RK8A and RW9JZ moving the folding antenna (Spiderbeam in the background)



FT8 pile-up on 20 meters

I have to say that the internet on the island does almost not exist. It was impossible to browse any websites and upload our logs. The only way was to download adiffiles from the laptops to our mobile phones and sent them to our pilots using WhatsApp, which worked very slowly and only at night.

We tried to focus on the low-bands with two stations running on 160-80-40 meters all the night. The 80 meter band was good and our delta-loop antenna worked perfect, with 3 S-levels less noise than on the vertical. Finally, we achieved 4,800 QSOs on this band, 2,300 of them were with EU.

As for 160 meters, we knew that most of the previous DXpeditions to CEØZ were not successful on top-band for EU and in Far East the demand was high. I have to say the truth that we patiently struggled with the noise until the last day of DXpedition. We tried the Beverage sloping from the hill to the beach, as well as BOG, but both did not work better than the TX vertical. Then we built a Frameantenna and spent a night on 160 meters, putting a first fifty QSOs into the log. Later we got the message from our pilot that our signal was good in Europe and we had a 3 kHz pile-up. On the next day we built a double-frame antenna and moved it closer to the beach. This helped us to improve RX a bit more and we were trying 160 meters during all the remaining nights, logging 320 QSOs of which 240 were with EU. I can't say it's a good result for sure, but we really did our best and we were glad that some of the top band fans got their "new one".

Wlodek, SP6EQZ, left the island on March 24th as planned. In the last week of the DXpedition we were only three operators: me, Vlad, RK8A, and Leo, RW9JZ. We were already tired enough, but continued to handle the pile-ups, which did not decrease, especially on 30, 40 and 80 meters. By the way, we decided to concentrate only on CW and FT8 modes because of two reasons: SSB was not much effective in poor solar conditions, as well as due to our situation with the high noise levels. FT8 gave a good chance to the small pistols and helped to get more unique stations.

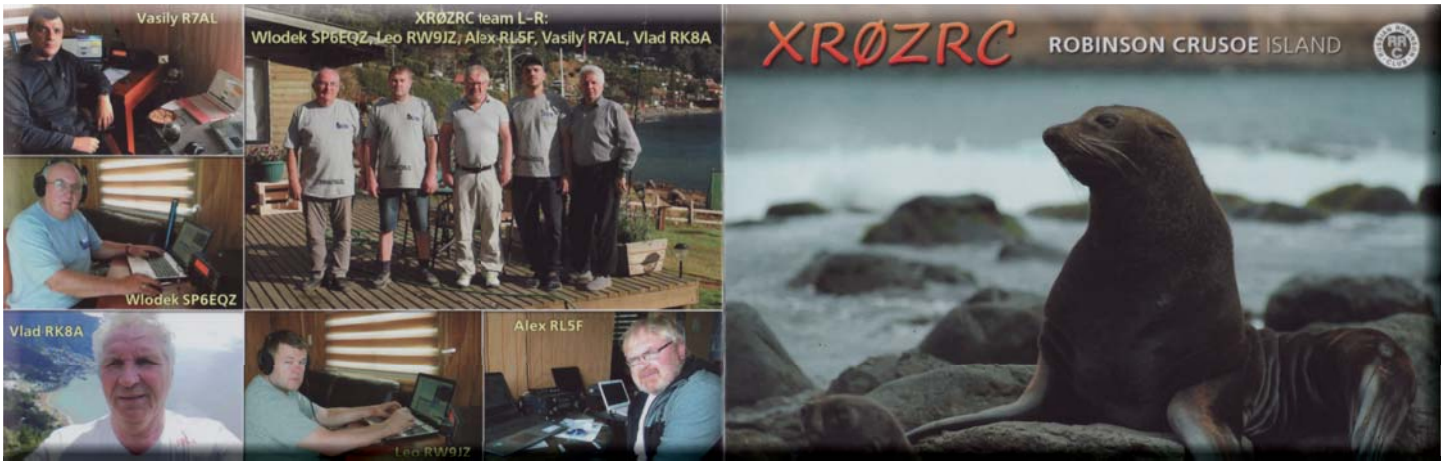
The life on Robinson Crusoe was quiet and measured and the islanders were very friendly. With the mild oceanic climate, beautiful landscapes and nature, we really enjoyed every minute of our stay on the island. Vlad, RK8A, cooked us delicious dishes of fresh tuna caught by local fishermen.

But all good things come to an end. The return flight to Santiago was scheduled for the 2nd of April. We left most of the antennas, poles and coax at "Transmarco" office and asked them to send all our cargo with the next ship to the mainland. Robinson Crusoe airport is situated in the South-West of the island, about one hour boat ride from the settlement, so we enjoyed the beautiful views of the island on the way to airport and dreamt of returning here again.

On behalf of the XRØZRC team, I express my gratitude to all Foundations, Clubs and individual sponsors for support!!! Special thanks to our Chilean friends: Marco, CE1TBN, Sebastian, CE3GCA, and Alejandro, CE3ARU. Very special thanks and warm regards to Francisco, CA2VMP, and his mother Marcia, CA2BRJ, for logistical assistance and big help!!

RK8A preparing the dinner for the team

Beautiful bay to the west from the settlement



T3ØL & C21WW – DXpeditions

BY YURIS PETERSONS, YL2GM

Western Kiribati and Nauru

Since our last DXpedition to 3C3W & 3CØW one year and four months have passed. During this time, I worked on different projects, however, that wasn't successful because we couldn't receive operating licenses and/or had some other difficulties to conduct a successful DXpedition.

In summer 2019, I decided to carry out a DXpedition to Nauru (#54 Most wanted). The flight to Nauru from Latvia is very long distance and expensive. For this reason and to be more efficient I opted to visit a 2nd DX entity as well – Western Kiribati (#68 Most wanted). The DXpedition was set for September 2019, so we had 3 months for preparations.

The first task after receiving the license was to book flight tickets for the team. Europe's large airline companies recently have downsized baggage limitations per passenger and for every additional weight unit they charge extra and this increases DXpedition expenses significantly. To Brisbane in Australia I chose Etihad airlines and continued by Nauru airlines to Nauru with connection flights in between. To both companies I submitted DXpedition support applications for sponsorship of additional 50 kg baggage. Nauru airlines decision to support us was positive, but Etihad airways declined. So, from Riga to Brisbane we had to pay extra for our baggage both ways which at the end summed up to more than one additional passenger ticket.

The next challenge for this DXpedition was the booking of hotels and acquiring visas. With Nauru everything went smooth and the visas were granted fast and in time, however, with Kiribati it was quite the opposite – it got delayed till our flight day. The usual response by the authorities was that everything is in process and we should just wait. Just on the last day when being already on the way I received an email from the representatives telling me that because of bank transfer charges they received only 145 AUD of 160 AUD. They asked which one of our team members should get declined for the visa? I had no opportunity to transfer additional funds right away and this would also take some time to be processed. This was also risky because we could have been restricted to board the plane without our visas on hand. At the end, I managed to contact our hotel owner who paid for us the missing 15 AUD to the ministry's account. Later when being at Brisbane's airport I received the visas by email. For Latvian`s the Australian transit visa application process is online and it's necessary to fill out 12 pages and submit 7 documents.

Yuris YL2GM starting the DXpedition journey

The team at Riga airport: Jack YL2KA, Kristers YL3JA, Kaspars YL1ZF and Yuris YL2GM

I never had to fill out so many documents to receive a visa, not to mention that this is just a transit visa. I submitted all necessary documents in time for all team members and three of us received their visa on the next day. The fourth one was declined after 2 weeks waiting. After submitting documents for a 2nd time the visa was granted a week later.

For the operating licenses I submitted applications in time and Nauru replied that I will get them only when arriving in the country. They told me that I could get only a 2 letter suffix callsign. This was the reason why we had to change our desired callsign to C21WW. Nauru also granted 60 m band, but Western Kiribati replied that first we had to obtain visas and then only we could apply for licenses. When all of this was done and the T3ØL license issued the 60 m band was not included. Unfortunately, from the 2nd application I submitted I did not receive any response.

Three months of preparations went by fast. It was the 4th of September when we met in Riga airport for our flight Riga (LAT) – Munich (GER) - Abu Dhabi (UAE) – Brisbane (AU). After more than 24 hours of flight time we arrived to Brisbane. The next flights were to Tarawa, Kiribati, with Nauru Airlines. Nauru Airlines support with 50 kg additional baggage was much appreciated, because our hand luggage consisted of heavy transceivers, PA`s and laptops.

TEAM

Our previous team consisting of me Juris (YL2GM) and Kaspars (YL1ZF) was joined by Jack (YL2KA), who was also our photographer and graphical designer, and Kristers (YL3JA) who was our new hope for WRTC 2022.

Operators: YL2GM, YL1ZF, YL2KA, YL3JA
Coordinator: Kaspars Petersons
QSL manager: YL2GN
Webmaster: YL2VW
Graphic designer: YL2KA
Technical advisor: YL3DW

EQUIPMENT

Transceivers: 3x Elecraft K3
Power amplifiers: 3x SPE Expert 1.3K-FA
Antennas: 160/80/60/40/30 m – 18 m high vertical with capacity hat by RA6LBS
2 x 20-10 m Spider-beams
40 m – 2 phased vertical
80 - 10 m - EFHW-8010
Beverages for receiving

DXPEDITION DIARY

Day 1 – Thursday, 5th of September

In the early morning at 06:30 h local time we landed at Kiribati airport where we were greeted by a youngster with a poster from Dreamers guest house (our hotel and QTH for T3ØL). We loaded our bags with the gear into his car and tied our antennas to the cars roof and continued to drive to our hotel approximately 15 km from the airport. On the way we got acquainted with our driver whose name was Adda and who turned out to be the chief of our hotel. He would prepare the meals for us during our stay.

After arrival we moved into our rooms and started to check our hotels surroundings. The yard was not very big and we were only able to set up just one spider-beam antenna. Installing the guy-wires was quite challenging because the yard was only 12 x 12 m and one of the cords had to be attached to an old tree at the ocean shore. We hang our EFHW-8010 antenna into a palm tree next to the yard and pulled its wires towards the shore in the lagoon. At night we had to lower the spider-beam in order not to break it due to the increasing ocean tide.

Kiribati Airport: Kristers YL3JA, Kaspars YL1ZF, Yuris YL2GM and Adda

The plan was to set up two stations. Therefore, we visited two other nearby hotels, however, none of them suited our needs regarding setting up antennas and the plans for two different stations had to be cancelled.


T3ØL QTH – Dreamers Guest House

Day 2 – Friday, 6th of September

After breakfast we fixed the guy-wires and erected the Spider-beam to its intended height. We also prepared the place behind the hotel for the 18 m RA6LBS low band vertical. We were only able to fix three guy-wires on the beach and the fourth had to be fixed in the tidal area. The problem was fixing the guy-wire poles in the beachy sands because the poles we prepared were not suited for this ground. We fixed this by finding 1 m long wooden poles on the site which

Kaspars YL1ZF operating

Kristers YL3JA operating

were hammered into the sand and covered with stones. At noon we finished setting up the vertical and felt that we got burned in the hot sun. Thus, the remaining antenna installation had to be postponed to the early morning when it was cooler. Kaspars was already operating and we didn't want to bother him with these works.

160/80/60/40/30 m RA6LBS 18 m high vertical

Jack YL2KA at the 20/10 m Spider-beam

Day 3 – Saturday, 7th of September

After getting up at 06:00 h am and finishing works on the 2nd spider-beam at lunch time, we started operating with the 2nd station on SSB. Kristers participated in the AADX SSB contest on 20 m and 15 m and Kaspars as usual operated on 20 m, 17 m and 15 m CW. After lunch we set up the 100 m long beverage towards USA with the intention to work on 80 m during the night. However, the evening came with an electricity black out and we lost all operating capabilities. The guest house had a 3 kW generator, but the owner wasn't there and the mistress had no knowledge how to operate it and also, she could not allow us to work with it. During the night, the electricity returned and we started to operate on the low bands mainly with JA and USA and only some QSOs with EU.

Day 4 – Sunday, 8th of September

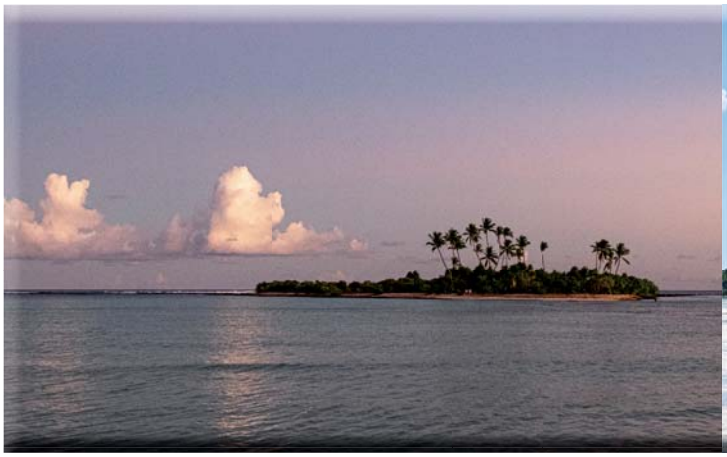
Early in the morning before breakfast we took down the beverages and maintained the logs. After that we lost electricity again because of maintenance work after last night storm damages. On our request the guest house staff turned on the generator and with this power we could operate one station with PA and another transceiver with 100 W. In the evening electricity came back. The propagation was very bad – when operating SSB we couldn't a hear single station and on CW QSO rate was also minimal. Some amateurs had turned to FT8 mode and during this time with bad propagation it was our only chance to operate.

Day 5 – Monday, 9th of September

The propagation did not improve. On the higher bands 24 and 28 MHz there was only noise and we could not make a single QSO. Some progress was on 18 MHz where we were able to make some QSOs in CW and FT8. Unfortunately, in SSB we had only a bit more than 500 QSOs. We could only hope that the propagation would improve in the second part of the DXpedition to Nauru.

Day 6 – Tuesday, 10th of September

We checked our statistics and saw some improvements with Europe which at this time was 8 % of 8,700 QSOs. Around midday we again lost electricity and worked



View from our island

View from our island

with the generator until the evening.

Today we also drove to Bairiki in order to buy support goods for the "Hams with Hearts" charity program. More about this please read the "Hams with Hearts" section.

Day 7 – Wednesday, 11th of September

After uploading the logs we noticed that we had passed the 10,000 QSO mark and the statistics with Europe had improved to 9.8 % of the total QSOs. We also managed to make our first QSOs on 10 m and 12 m, mainly with Japan. As this DXpedition phase approached its end, we had to start thinking about dismantling antennas and packing for Nauru.

Day 8 – Thursday, 12th of September

In the evening we took down one Spider-beam and the 7 MHz verticals. During the night we worked with the RA6LBS vertical on the low bands.

Celebrational dinner: Yuris YL2GM, Jack YL2KA, Kristers YL3JA, Kaspars YL1ZF

Day 9 – Friday, 13th of September

Before breakfast we took down the RA6LBS vertical and later around lunch time we dismantled the last Spider-beam. Until the evening we had to pack all our gear and get ready for our flight. In total we have made 13,644 QSOs from T3ØL.

In the evening we had our celebration dinner and the hotel owner prepared a table for us in the garden with different Kiribati national food. The hotel staff was very kind and helpful and we promised that we would recommend their hotel also to other amateur radio DXpeditions. In our opinion, this was the most suitable place for an amateur radio activity. It turned out that T3ØGC had also booked this place for their DXpedition in October.

Kaspars YL1ZF, Yuris YL2GM, Kristers YL3JA

Yuris YL2GM and Kristers YL3JA setting up the Spider-beam

Day 10 – Saturday, 14th of September

Our flight to Nauru was scheduled for 11:50 h am and we landed there at 02:00 h pm. I called the Menen hotel and the transportation minivan was sent for us. I had booked 2 rooms in this hotel and right after checking in we inspected the surroundings for suitable antenna locations. Unfortunately, this hotel was not suited for our operations – the rooms were in the middle part of hotel and there was no place for our antennas. On the island there were three more hotels and we went looking at them. At the end, the most suitable one was the Budapest hotel located right at the ocean beach in the North of the island. The hotel staff was very helpful and we rented 2 rooms there. After this day's activities we were very tired and went to bed.

Day 11 – Sunday, 15th of September

We started our day at sunrise and as soon as the first Spider-beam was installed, Kaspars started to operate on CW. The rest of us continued with the RA6LBS vertical and in the evening we are able to work on the low bands. We had some problems with laying out the radials because one side of the yard was with regular traffic. It seemed as if we were the only guests in the hotel. Unfortunately, because this hotel couldn't provide us with at least one breakfast per day, we had to prepare meals for ourselves and for dinner we went to the Chinese restaurant.

C21WW QTH and antennas

Day 12 – Monday, 16th of September

We managed to acquire for our use a kitchen room located on the other side of the hotel which we could use for our SSB station. The only problem was that there was no air conditioning and the temperature at the hottest times of day peaked to 34 degrees Celsius. We had one fan, however, it broke already on the first day.

Just before lunch time we completed to set up the 2nd Spider-beam and 2 phased verticals for 40 m. We started to operate on SSB and in the evening we already had 1,000 QSOs (5,000 in total) in the log. For now we had finished with the antenna construction and the missing beverage towards Europe would be set up on the next evening. Overall, the noise levels in hotel were high, so it was hard to anticipate which results we would get on on the low bands. Today we also bought a 12 GB internet card for 95 AUD which was enough for the rest of DXpedition to upload logs, check emails, read news etc.

Day 13 – Tuesday, 17th of September

Comparing to Western Kiribati the propagation was much better which was confirmed also by the daily QSO score. In addition, the beverage towards USA showed good results, however, we were

Jack YL2KA photographing Kristers YL3JA in our kitchen station

Sea storm approaching

not able to set up the beverage towards Europe as planned.

Day 14 – Wednesday, 18th of September

This day I received a message from Nauru Airlines about changes in our flight schedule – our flight on the 25th of September from Nauru to Brisbane was cancelled and we were offered to take this flight one day earlier. This changed our plans because we would operate one day less and we would have to spend one additional night in Brisbane.

Day 15-18

Whilst operating in our usual daily routine we had some problems with the RA6LBS vertical because of humidity which had entered the communication box and caused high SWR. On Monday we would take down and pack the antennas. In nine days we made a total of 27,315 QSOs. Everyone of us was tired and longing for home. Visiting two DX locations during one DXpedition was exhausting.

Day 19 - Monday, 23rd of September

Before our flights home we went for a quick sightseeing tour on the island. We visited the main port and phosphate mines and after sending postcards home from the local post office we took our plane to Brisbane. There we landed around 07:00 h pm. The baggage formalities went by fast and the luggage was delivered to our hotel on the next morning.

Day 20 - Tuesday, 24th of September

This additional and unplanned free day in Brisbane we were using for excursions and sightseeing. We took a 4-hour tour with a small ferry through the city. These small ferries called "Sea cats" were used for public transportation. With a lot of stops on both river sides it was possible to get to different city locations quickly during rush hours.

In the evening we were in the airport and getting ready for our more than 24-hour flight back home. We landed in Riga Airport in the evening on the 26th of September, where our families and friends welcomed us home.

One of the many very beautiful sights on the island

On "Sea cat". Yuris YL2GM, Kristers YL3JA, Kaspars YL1ZF and Jack YL2KA taking pictures

HAMS WITH HEARTS

During this DXpedition we had planned to conduct two "Hams with Hearts" activities – one in Western Kiribati and another one in Nauru. The 2nd activity got cancelled due to unforeseen flight schedule changes.

"Hams with Hearts" is a radio amateur humanitarian aid project organized by INDEXA. More detailed information about this program you can find on this website:

http://indexa.org/hamswithaheart.html

As in the previous DXpeditions we were aiming to support young pupils and local schools with first need goods. This time amateurs supporting this charity was not as strong as for our previous DXpeditions. INDEXA supported this activity with 150$ and the total budget after conversions and fees was 165$ + 30$ added by our team.

For the activity in Western Kiribati we went to a local shop in Bairiki and bought exercise books, pencils and other school things. We wrapped a total of 50 packages with school goods and presented them to the pupils.

Thanks to INDEXA, N4EFS and 5P1KZX for putting those smiles on little school children faces and contributing to their education.

Hams With Hearts
WORLD RADIO AMATEURS
DX GOODWILL DX FELLOWSHIP DX
Humanitarian Aid Project
INDEXA

Serving DX Community since 1986
EUDXF
EUropean DX Foundation

STATISTICS

Band/Mode breakdown T3ØL

Band	CW	FT8	SSB	FT4	Total	Totel %
160	370	121	0	0	491	3.6 %
80	847	1,100	0	0	1,947	14.3 %
60	0	0	0	0	0	0.0 %
40	817	1,323	457	0	2,597	19.0 %
30	1,033	1,020	0	0	2,053	15.0 %
20	1,488	2,043	704	108	4,343	31.8 %
17	579	764	17	0	1,360	10.0 %
15	329	381	74	0	784	5.7 %
12	0	52	0	0	52	0.4 %
10	0	17	0	0	17	0.1 %
Totals	5,463	6,821	1,252	108	13,644	100.0 %

Band/Mode breakdown C21WW

Band	CW	FT8	SSB	Total	Total %
160	473	136	0	609	2.2 %
80	1,361	882	0	2,243	8.2 %
60	42	50	0	92	0.3 %
40	1,769	1,553	1,305	4,627	16.9 %
30	1,253	1,260	0	2,513	9.2 %
20	3,811	1,760	3,150	8,721	31.9 %
17	1,623	1,634	1,361	4,618	16.9 %
15	1,062	1,213	758	3,033	11.1 %
12	262	201	23	486	1.8 %
10	127	243	3	373	1.4 %
Totals	11,783	8,932	6,600	27,315	100.0 %

DXCC by Band/Mode breakdown T3ØL

Band	CW	FT8	SSB	FT4	Total
160	8	10	0	0	13
80	21	59	0	0	61
60	0	0	0	0	0
40	47	55	19	0	72
30	53	68	0	0	77
20	45	82	20	4	89
17	20	27	1	0	35
15	14	20	4	0	23
12	0	3	0	0	3
10	0	2	0	0	2
Totals	75	100	28	4	111

DXCC by Band/Mode breakdown C21WW

Band	CW	FT8	SSB	Total
160	17	12	0	19
80	46	49	0	60
60	3	17	0	19
40	64	69	53	81
30	52	66	0	74
20	84	72	91	113
17	40	69	52	81
15	28	55	16	66
12	6	9	2	10
10	2	10	1	10
Totals	91	96	95	120

Continent by Band T3ØL

Band	160	80	60	40	30	20	17	15	12	10	Total	Total %
AF	0	3	0	4	1	2	0	0	0	0	10	0.1 %
AN	0	0	0	0	0	0	0	0	0	0	0	0.0 %
AS	309	1,005	0	1,502	1,068	2,057	1,008	600	48	16	7,613	55.8 %
EU	0	284	0	263	460	357	17	3	0	0	1,384	10.1 %
NA	159	520	0	558	383	1,613	267	139	0	0	3,639	26.7 %
OC	23	111	0	186	106	238	56	37	4	1	762	5.6 %
SA	0	24	0	84	35	76	12	5	0	0	236	1.7 %
Totals	491	1,947	0	2,597	2,053	4,343	1,360	784	52	17	13,644	100.0 %

Continent by Band C21WW

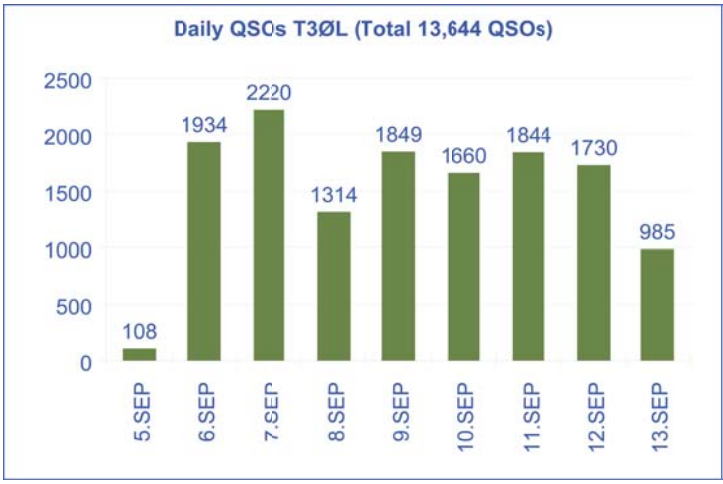
Band	160	80	60	40	30	20	17	15	12	10	Total	Total %
AF	0	0	0	1	1	13	2	0	0	0	17	0.1 %
AN	0	0	0	0	0	0	0	0	0	0	0	0.0 %
AS	412	1,122	9	2,265	1,378	3,112	2,699	2,305	460	361	14,123	51.7 %
EU	76	504	40	1,402	623	3,211	881	382	0	0	7,119	26.1 %
NA	102	524	42	791	420	2,115	882	255	0	0	5,131	18.8 %
OC	19	82	1	141	78	236	144	88	26	12	827	3.0 %
SA	0	11	0	27	13	34	10	3	0	0	98	0.4 %
Totals	609	2,243	92	4,627	2,513	8,721	4,618	3,033	486	373	27,315	100.0 %

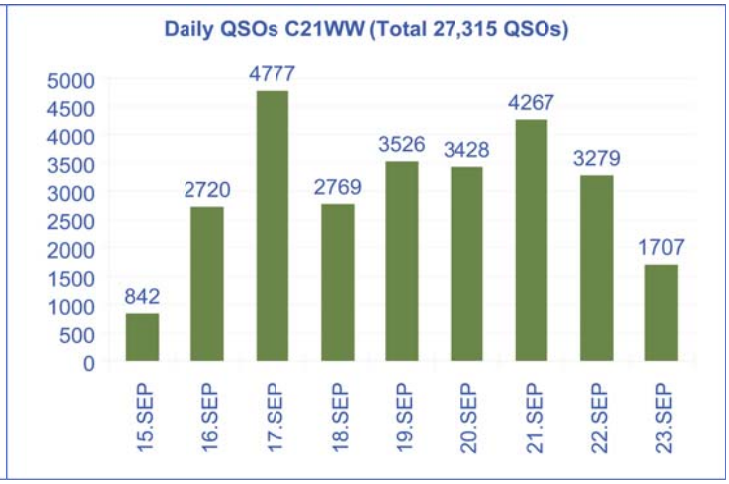
Continent by Mode T3ØL

Band	SSB	CW	FT8	FT4	Total	Totel %
AF	0	2	8	0	10	0.1 %
AN	0	0	0	0	0	0.0 %
AS	861	3,005	3,671	76	7,613	55.8 %
EU	4	322	1,058	0	1,384	10.1 %
NA	260	1,802	1,554	23	3,639	26.7 %
OC	114	244	395	9	762	5.6 %
SA	13	88	135	0	236	1.7 %
Totals	1,252	5,463	6,821	108	13,644	100.0 %

Continent by Mode C21WW

Band	SSB	CW	FT8	Total	Total %
AF	1	4	12	17	0.1 %
AN	0	0	0	0	0.0 %
AS	3,205	6,454	4,464	14,123	51.7 %
EU	2,278	2,264	2,577	7,119	26.1 %
NA	888	2,659	1,584	5,131	18.8 %
OC	212	355	260	827	3.0 %
SA	16	47	35	98	0.4 %
Totals	6,600	11,783	8,932	27,315	100.0 %





CONCLUSION

During this DXpedition we made 13,644 QSOs from T3ØL and 27,315 from C21WW. All together this was a tough DXpedition because of the long flights and the two times we had to build up stations. Propagation also were not on our side and could have been better, especially during T3ØL. All together we were satisfied with this DXpedition which also was our first Pacific DXpedition.

At the end, I want to thank all our supporters and amateurs who worked us and also thank you for reading our story.

73, Yuris/YL2GM/, Kas/YL1ZF/, Kris/YL-3JA/, Jack/YL2KA/

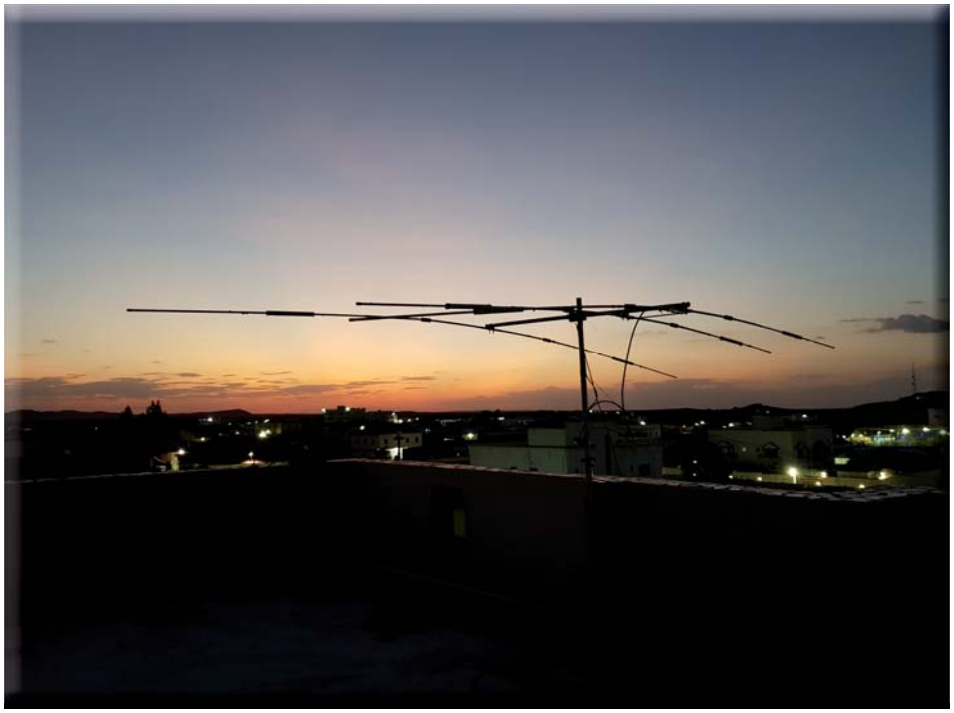
You can find more information on the DXpedition webpage:

http://www.lral.lv/c21ww_t30l/

6O7O – Somalia DXpedition

BY KENNETH OPSKAR, LA7GIA

When I visited Somalia in 2018 with my friend Adrian, KO8SCA, I thought we never made a real low band effort, due to reasons which were out of our control. This time I wanted to focus on the low bands as this was where Somalia was really needed. Last time we had problems with local people moving, cutting and stealing the beverage wire during night time. This time, I put even more time into careful planning of the DXpedition. I have a good friend and a local contact person who lives in Somalia and truly assisted me in any matter. Without this local contact it would simply not have been possible to do the planning properly, or even obtain all permissions needed. As last time I decided to go to Garowe in Puntland, which is an autonomous region in north eastern Somalia. This is a relatively quiet part of Somalia, even though ISIS linked terrorist groups control in some parts. Terrorists use their relative freedom of movement to obtain resources, recruit fighters, and plan and mount operations within the whole part of Somalia, so careful planning security-wise was needed.



Mosley beam mini 32AW

Spiderpole - rooftop extension - sloping wires to ground level

I started ramping up the planning in February 2019 as my friend visited some potential QTHs in Puntland, to see if they were suitable for a low band trip. We looked at a couple of ones and decided to continue with a guest house. The management was positive, and there was space for my antennas. But I needed to obtain permit to install some of the antennas on the neighboring property as well on public ground. In addition to assisting with the guest house my friend also sorted out the 6O7O license application, which was an easy task this time due to the Ministry previous knowledge about my 2018 operation. I also received an official written letter of invitation from the Ministry to come and do amateur radio operation in Garowe. To obtain a visa, a letter of invitation is needed either from a governmental office or from a private company. It is not possible to obtain a visa in Puntland at the airports. This makes it even more difficult to access this region of Somalia as one needs an invitation. Because of my visits to Somalia I had to attend an interview at the US Embassy in Oslo explaining the purpose of the trips as my US ESTA application has been refused. For the rest of my life I must apply for a regular visa to enter the US. Each time I enter a US port of entry they now take me out of the line and take me into a room together with other suspicious people, where they check my visa and ask me questions about Somalia. That is the benefit of going on DXpeditions to rare locations.

I planned to take with me an extensive list of equipment to Somalia, in total about 102 kg. I brought with me about 4,300 feet of antenna wire, 1,200 feet of coax – and only 2,5 kg of clothing. I had a good setup of TX and RX antennas for the low bands, as well as my favorite Mosley

Trench dug by local craftsmen 4" deep!

mini 32 beam for 20-10 m. The low band antennas consisted of a 22 m top loaded 160 m vertical and a full-size 80/40 m vertical. All antennas were connected to a homemade relay switch and a common radial net consisting of 25 radials of 25 m length each. The RX antenna was a 230 m long beverage to NA/EU. I would be using my Elecraft K3 and Juma 1 kW amplifier and a KX3 as backup. I never experienced any sort of problem with the Juma amplifier as many others. I also added some additional African backup dipoles and a QRM eliminator. Not to mention all the different spare parts and tools needed!

The neighborhood where the guesthouse was located was not that populated. There were some houses around, but based on the 30 photos and videos the local contact provided upfront, I could see that there were not many streetlights or lights on any building around. My local contact made in total 3 site visits to this QTH. The first visit was to check the QTH and plan the permits. The 2nd visit was to complete the agreements, and the third and final visit just prior to my arrival was to confirm that all was ok. All this was done over a 7-month period. My local contact prepared and settled the agreement with the neighbors that I could use their property to install the TX vertical antennas. This agreement was crucial to be able to install a proper TX antenna. I had also reserved some smaller space inside the guesthouse property in case this plan failed. In addition, the local contact settled an agreement with the local government that I could install a beverage on public ground. This permit also allowed me to dig a trench across a public street for my RX coax. The beverage would be installed about 800 feet away from the guest house, all using DX-Engineering sponsored RG 75 quad shield coax and Remote QTH hardware, the same as I have at home. The local contact further provided local craftsmen who dug the trench for my coax 4" deep, as well craftsmen to assist with antenna installation. In addition, he dealt with the security company. As in all parts of Somalia, staying outside and moving around as a white man should be done with careful consideration. I used a professional and costly security company to bring me to/from the airport. That would be a transport with 4 armed soldiers. In addition, the guest house manned up, and I paid for additional two armed guards who would also serve as a guard for the beverage and for me when being outside. The guards would protect the beverage 24/7, two men with 12 hours shifts each. The beverage would be located so far away that without the guards I would have no control of this, and it would not work. Nevertheless, I never felt unsafe one moment during the trip! Going to Puntland was almost like going to some other country. Tourists are rare though, most foreigners who visit Somalia are businessmen, and there is a growing economy. A lot of new construction projects are being developed in Puntland!

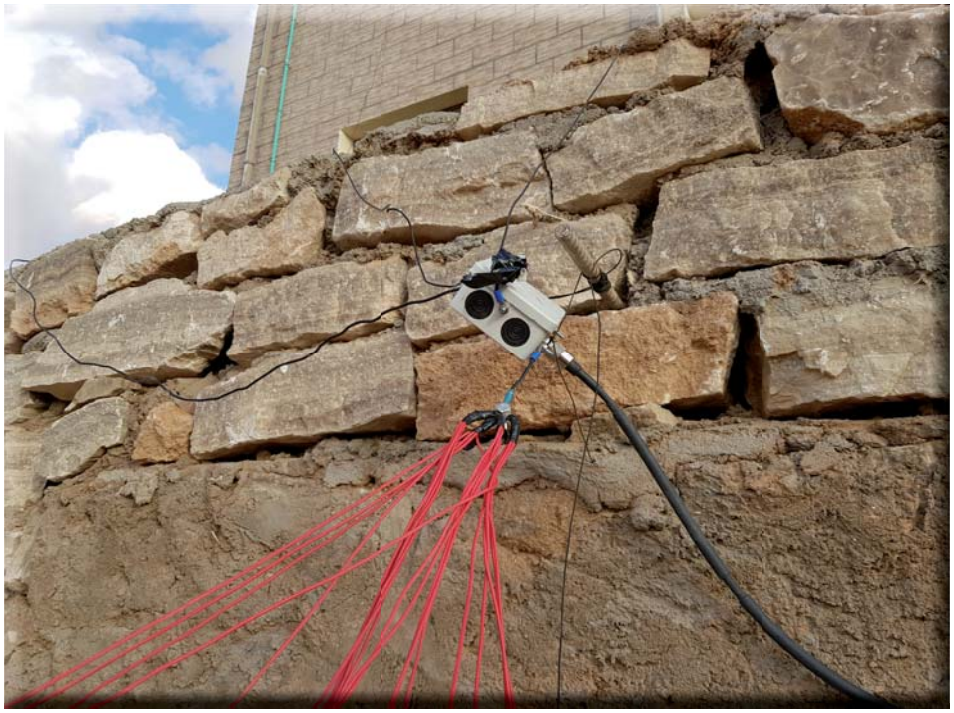
Arriving in Somalia I was welcomed by the local contact and we headed for the guest house with the secure transport. I was pleased to see that the trench for the RX coax was already done. I started installing the antennas, and after 4,5 hours all verticals, the beam and the beverage was up. It was very hot, and I also had some trouble tuning the 160/80/40 m vertical. Although this was pre-tuned at home, some cutting and tweaking of the impedance was necessary as final adjustment. This was not so easy with the top loaded antenna on the rooftop with guy wires as my assistant did not speak English nor did I speak Somali. With the additional armed security in place, the tuning process was slowed down. As we approached the sunset on the first day, I realized that I had to complete the tuning of verticals until next morning. I was then planning to do 20 m to NA. However, when I started to call CQ I realized that the propagation was bad and not as predicted. There was absolutely no propagation on 20 m, I could only work OK2PAY on 20 m, but that was the only station I heard very weakly! This turned out to be an early warning how bad the propagation was going to be on many bands during my stay. The following days my schedule was going to be the same:

DXpedition schedule	(local time)
07:00-10:00	sleeping
10:00-12:00	maintenance, repair or try to work EU/Asia even bad conds
12:00-12:30	lunch
12:30-19:00	DXing Bad conds
14:00	Asia 40 m is good!
16:00	low band antenna sys tem inspection. Check beverage and verticals with armend guard
17:00	LP to W6 SS W6 Beam VK
18:00	SP W6
19:00-19:30	dinner Chicken or pasta?
19:30-22:30	EU/Asia 30 m is good!
22:40-23:50	Japan SR
01:00	NA 20 m No conds!
02:00-0700	NA low band. Poor or good conds?
05:00	try to stay awake even if youbare tired.
05:50	sunrise
06:00-07:00	40 m
07:00	go to bed, no breakfast!

During the DXpedition I encountered some failures but managed to deal with all of them. After a few days an error message from the K3 showed up, this took some time to resolve, but turned out to be a problem with the SUB receiver mak-

ing TX impossible. The spider pole also fell due to heavy wind gusts in the first night, but most of all because the sections were not properly clamped. That was a lesson learnt. After I clamped the sections the spider pole was ok. After a week the driven element of the Mosley beam broke. Luckily, I had a spare plastic part, so I managed to fix it on site. However, this also showed the necessity of having additional African dipoles as backup. Another night, what I thought was bad propagation turned out to be some goats which had cut the beverage wire. Despite the guard protecting the antenna, he did not observe the goats before it was too late. He also thought I was sleeping during nights, so he did not want to "wake me up". On the next morning, we once again went through the procedures what they should do if anything happened. Their boss had some fun with the guard that even with his AK47 he was not able to protect the beverage. They also learnt that I do not sleep during nighttime. I was able to fix the beverage, but later in the week the beverage was once again taken by some children on their way to school who played with the wire. From the rooftop during daytime I could see the guard was doing a great job and taking it seriously, as he often walked the 230 m wire to check it. He would instruct people not to walk on the part of the coax which was on the rock or ask them to walk around. Each day I also went with the guard to check the low bands antenna, even though we only could communicate very little we had much fun and went along very well. I also had to do one inspection during nighttime to fix the beverage, even though I would avoid going out after sunset.

As the days went along pretty much the same, I realized that propagation was not the best. The high rate bands to EU were useless. On 20/17 m most days the EU stations would be very weak during daytime at the noise level or just above. In the afternoon the signals would improve, and I could have some hours of strong signals on higher bands. 20 m to NA was a disaster, there were simply no reliable openings despite I checked conditions every day. I also tried to focus on giving Asia a chance to work Somalia. However, the predicted openings to East did not occur on the higher bands as predicted. The most stable band to Asia was 40 m which opened very well prior to my sunset. As we approached my sunset the target was low bands 160/80 m and 40/30 m. The propagation on 160/80 m was sometimes very good to EU. While



African style 160/80/40 m vertical

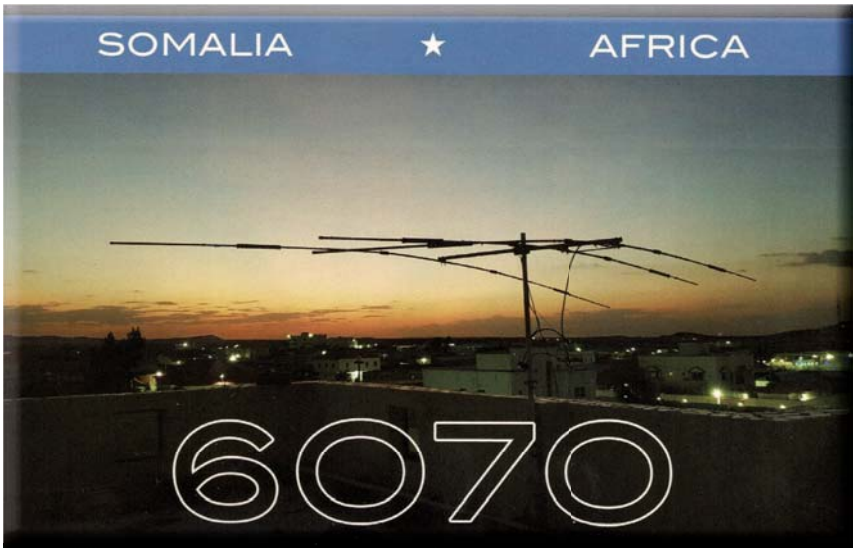
Mosley beam failed!

people spent years to improve their station, a DXpedition has to setup its African style field day station in hours. My beverage would work well towards EU, but the weaker NA stations would be more difficult from this part of the world, especially on 160 m. From my home station I knew that there can be a big difference in RX capability of a beverage compared to a RX array. Using a single directional beverage has its limitations but can still work very well. But you can't change the ground or installing conditions or change the propagation. In addition, the beverage was located on a very rocky ground, making it extremely difficult to put any ground stake in the ground and take advantage of the F/B ratio. The best band to NA was the 40 m band. I also had a couple of LP openings to the west coast (W6/W7) and put some effort into calling that area specifically. I made some very memorable Qs to NA, even though I worked the big guns and not the small stations. I especially enjoyed the openings shortly after my sunrise where the biggest challenge would be to keep the EU stations quiet. My 40 m vertical and 1 kW really performed well, and I could put many NA stations into the log.

Armed beverage guard 24/7

Ken operating 6O7O

During this DXpedition I also took notice and wrote down all those stations who called out of turn and clearly violated the DX Code of Conduct rules. This would be mostly strong EU stations which called out of turn when I called for NA/AS. The countries who violated the rules, sorted from high to low were: I 18 %, UA 13 %, DL 7 %, UT 5 %, EA 5 %, F 5 %, JA 5%. When logging the stations there was no doubt, they should know that I was calling for an area they did not belong to. None of these stations donated to the DXpedition expenses, and none of the stations that donated was on the list! In total those stations calling out of turn accounted for 5 % of the unique number of stations worked! The dupe statistics also showed that I worked 6 % dupes! All this while I had a LIVE ONLINE log at club log livestream. It is simply amazing – all these online features don't seem to have any impact on most operators. In my opinion these online features can create even more confusion. The club log livestream worked very well for me, and it is a great tool to visualize the propagation. Another increasing issue these days is all the social media. Lots of people would contact me on messenger, WhatsApp, email, Facebook etc. and regularly update me about THEIR TX frequency, hoping that I would tune in and work them.



As part of this DXpedition I also setup a small charity fundraiser for a Norwegian organization which helps children in Africa. It summed up to 6,200 USD in total. This equals 40 children getting education and a free meal at school for 1 schoolyear! The expense in Z2 is far less than 1 USD per day for this. The donation will specifically go to a project in Zimbabwe. I want to thank everybody who donated to this fundraiser, also to Indexa Hams with Hearts for their contribution.

73 Ken, LA7GIA

A35JT — DXpedition to the Kingdom of Tonga

BY GRANT WILLIS, VK5GR

IN THE BEGINNING...

The idea for this DXpedition began after I returned home from Vanuatu as YJØAG in April 2018. Up until this point, I had been trying to combine a family holiday with Amateur Radio, having also operated as E6AG on Niue in 2017 and as VK5GR/P on Kangaroo Island in 2016. The lure of the pileups and the resulting impact on family time meant it just wasn't working. A new formula was needed. It was time to "upgrade" to the next level!

At the end of 2018, after discussing it with my family, the decision was made. For the next DXpedition, I would ask some friends to come with me and share the operating, building it into a full DXpedition. I received early interest from within my local Amateur Radio club from Olgierd (Oly) VK5XDX and Andrew VK5AKH. From interstate, my friend David VK3BDX was also keen to join us, creating a 4 man team. We were then ready to take the next steps.

Unfortunately, early in the project, David learned he was unavailable due to a family wedding. Luck however shined when Steve VK5SFA also expressed interest, having just retired from work. With that, the team was settled and planning went into full swing.

The A35JT Team

WHERE TO GO?

We also had to decide where we wanted to go. The search began with a look at the rankings of the various Pacific DXCC and IOTA entities. Next I considered what suitable accommodation and airline access was available. Finally Tonga was picked due to ease of access (it was service by large A320/737 aircraft from Australia or New Zealand) and availability of suitable venues, at prices we could afford. It was also highly sought after in Europe, where it was within the top 60 most wanted and was within the top 100 most wanted globally. Things then began to take shape.

APPLYING FOR A LICENCE

After making some enquiries with the A35EU team from the previous year, I was able to contact the Ministry of Communications in Tonga which was responsible for issuing our licence. After being sent the required forms, I made our application for our desired callsign, A35AG.

KINGDOM OF TONGA

PRIVATE EXPERIMENTAL (AMATEUR) STATION LICENCE

Licence No.: AMT03/19

Pursuant to section 90 of the Communications Act 2015, the Regulator hereby grant to Mr. GRANT RUSSELL WILLIS, to establish a private experiment (Amateur) station in TONGA for the transmitting and receiving of radio communications in accordance with the particulars of the schedule set forth below, and during the period for which this licence is valid.

The installation, usage and operation of the radio station shall therefore be carried out in accordance with and shall be subject to the provisions of the Communications Act 2015, and any applicable Regulations and any [illegible] instrument made thereunder, and such amendments and additions thereto, as are made from time to time.

Date of Issuance: 03rd March, 2019

Date of Expiration: 03rd March, 2020

SCHEDULE

1. Call Sign : A35JT
2. Location of Station : TONGA.
3. Authorised Transmitting frequency bands :

MF	BAND (kHz)	- 1 800-2 000
HF	BANDS (kHz)	- 3 500-3 900, 7 000-7 200, 10 100-10 150 (x), 14 000-14 350, 18 068-18 168 21 000-21 450, 28 000-29 7000, 24 890-24 990.
VHF	BANDS (MHz)	- 50-54, 144-148

A35JT Licence

I was informed that everything would be fine and that the call sign was available as things continued to progress, albeit on "Island Time". Then finally, after approximately 8 weeks of correspondence, we were issued with our licence. There was a little surprise however when the final callsign granted was A35JT. Oh Well! After discussing it with the team we decided it wasn't worth the extra effort to question it, so A35JT it was!

SELECTING A VENUE

Selecting a venue, when you have never been to the country before, is always difficult. Not having the means to conduct a scouting visit prior to the main DXpedition, you find yourself relying heavily on the internet and email. This is then made harder each time by having to explain to someone, who usually has never heard of Amateur Radio and for whom English may not be their first language, what it is you want to do when you arrive.

At the same time, you are searching for photos to confirm if there are enough beds, whether the facilities for cooking are adequate, if there is somewhere suitable to install the radios, get the feeders in and out of the room and most importantly enough room to install the antennas. Next are the complications around trying to secure dates with the accommodation while at the same time synchronizing them with available airline flights. All up it can be quite the puzzle.

Organising the trip to Tonga was no exception. Our initial plans revolved around using an AirBnB property on the south

Teukava Beach Oasis (www.teukava.com)

coast of the island. While not an ideal water take off to Europe, it at least had the space needed. However, complications with timing and confusion over the room details meant that the original option became unavailable before we could confirm our flights. So, back to the drawing board we went.

Finally, after making some further telephone enquiries, the owners of Holty's Hideaway on the North West coast (one of the properties we contacted) suggested we consider Teukava Beach Oasis across the road from them. From the moment we contacted Fiona at Teukava, things were looking good. We obtained her agreement to use the facility for our radio activities and struck a deal to take exclusive use of the entire facility for the length of our stay.

Finally things seemed to be coming together and we were able to synchronize our airline bookings too. There was only one wrinkle in our intelligence data that we had to deal with upon arrival 12 months later. You just never quite know until you get there…

TRANSPORT TO TONGA

The next major logistical hurdle was navigating how to book the necessary flights with enough baggage allowance to get the team and our equipment safely to our destination. We chose to fly Air New Zealand which served both Adelaide and Tonga direct from Auckland, New Zealand, which is a major air hub for the South Pacific.

The problem this brought was that excess baggage on the Auckland – Tonga flights is not guaranteed beyond 2 bags per person. Try as we might, we couldn't find a way around this that would ensure all of our gear landed the same day we did. So, the initial target weight for EVERYTHING in the DXpedition was set at 5x 23 kg bags for gear plus 2x 23 kg bags for clothes and personal items for 4 people. Ambitious to say the least…

EARLY STATION DESIGN

The next step was to start designing the station. Initially, the plan was to take one main station and a spare transmitter. This eventually became three transmitters, with the intention that all were able to be used simultaneously. That drove further requirements for antennas and filters plus extra computers, interfaces, power supplies and more. It is amazing how quick it mounts up!

As the design continued to grow, so did our battle with weight as we were still limited to 7x 23 kg cases for electronics and clothes. This was to be a continuous point of tension as the project developed, which ultimately required some expensive decisions.

ANTENNA SELECTION

Having noted that Tonga was high up the most wanted list in Europe, we early on picked this as one of our primary targets. We knew that trying to work Europe would be hard. Antennas with some gain or at least directionality were required to meet our objectives. We also felt that the workhorse bands would be 40 m and 20 m, closely followed by 30 m, given the period of the sunspot cycle we were in, so much of our focus was placed there.

It was also clear that there was a lot of interest in 160 m from everywhere. While it wasn't intended as primary goal of the DXpedition, some effort was made to cater for 160 m and 80 m.

With this in mind, we nominated the 20-10 m MWØJZE portable HexBeam I had used in Vanuatu as one of the antennas. For 40 m, having seen one used to great effect on the 3B7A DXpedition, we chose to design and build a 4-square array. The team then added another 4-square for 30 m for good measure. The last antenna selected was a multi-band 160 m to 10 m vertical.

DESIGN AND CONSTRUCTION – THE 30/40 M 4-SQUARES

The team split the responsibilities for delivering each antenna and work began on what would be a 9 month marathon design and testing program. In the beginning, weight was as much a critical factor in the antenna design process as was RF performance. This very quickly became a tall order to fill.

Olgierd took up this challenge first, working on the design of the 40 m 4-square array. The first version was then tested in February 2019 during the CQ WPX SSB contest. It worked really well, but weighed in at over 18 kg. This was before remote switching gear had been added. So, reluctantly, back to the drawing board we went.

Fortunately, the team was then able to source some 12 m fiberglass fishing poles from a VK4 amateur. Using an elevated radial design, Olgierd then produced a new mechanical design which saved ~4 kg of weight in the process. He then added a

Tune & Test Day in Adelaide 30 and 40 m 4-square arrays

remote relay switching system, so we could switch the array direction back in the radio shack. This was vital, greatly enhancing the array's usability.

Meanwhile, Steve VK5SFA set about building the 30 m array. Its design also used an 8 elevated radial per antenna system, but was based on 10 m fishing poles.

Lots of work then went into making the 30 m and the 40 m controller and phasing units capable of QRO. Meticulous measurements were also made of the phase shifters to ensure the correct phase presentation and impedance matching to each antenna.

Finally, the proof was to be found on air. A tune and test day was planned in a local park about 5 minutes from VK5GR's QTH. Both arrays were installed and with help from Paul VK5SL and his professional broadcasting experience, we were able to measure and verify the patterns the arrays produced.

It's worth noting that, throughout the project, testing and verification was always part of the plan. This, it turned out, was critical as the pattern tests revealed a problem with the 40 m array. It had lost its directionality compared to the first trial in February and we didn't know why! After further investigation, Olgierd discovered a broken driven element conductor in one of the elements. It was much better to find and fix these sorts of things back in Australia than to not discover it until we were out in the Pacific.

Satisfied that all was now well, we were able to package up the 30 m and 40 m antennas ready for shipping.

LOW BAND ANTENNAS – 80/160 M + MULTIBAND

Focus then turned to the 80/160 m Inverted L antenna. Our plan was to adapt part of an 80 m CrankIR kit plus the 40-10 m CrankIR antenna to a 12 m Spiderbeam™ fiberglass pole. This gave us a tunable multi-band antenna that took the original 40-10 m design and extended it down to 160 m.

The biggest challenge was to deal with the lack of rigidity the 12 m Spiderbeam™ pole has over its top 2 segments. While holding up verticals it is fine, when it came to having the inverted L pulling off to the side of the pole, the horizontal mechanical loads were making it difficult to rig. Our solution was to add some additional box rigging, much like you find on yachts. We also replaced the top two Spiderbeam™ sections with 3 of the fiberglass tubes that came with the CrankIR 80 m extension kit, but mounted at the bottom of the Spiderbeam™ pole instead. In this way, we were able to maintain 12 m of height but on a much more rigid structure that was capable of taking the loads presented by the inverted L.

160 m Inverted L on a Spiderbeam™ 12 m pole

We then added 8 radials to the antenna plus an extendable counterpoise for 160 m and away we went. Was it the most efficient antenna for 160 m? Certainly not. Did it provide access to 160 m? Absolutely! As the results from the DXpedition show, we were able to make over 600 contacts on 160 m with this modest antenna.

The final addition to complete this antenna was to include a switchable impedance matching transformer at the feed point. Thanks must go to Neil VK5KA who helped teach us about RF transformer design during the development of this antenna!

HIGH BANDS – PORTABLE G3TXQ HEXBEAM 20-10 M BY MWØJZE

For the bands above 20 m we planned two antennas. One was the tunable vertical intended mostly for 160-80 m and the other was my trusty portable HexBeam.

I first used this antenna, produced by Ant MWØJZE, during my last DXpedition as YJØAG on Efate in Vanuatu. This time, it would also serve us well. Weighing in at only ~6 kg, it packs good performance and low weight, very important considerations for a fly in operation out in the South Pacific.

MWØJZE HexBeam & Spiderbeam™ Mast

6 m LFA2 & SpiderBeam™ Mast

We then used a 10 m SpiderBeam™ aluminum mast (one of two taken on this DXpedition) to mount the beam. These masts, weighing in at ~11 kg, make great DXpedition towers. At a pinch I have erected the HexBeam and mast by myself in about 4 hrs. With a build team of three we hoped to have the entire antenna in the air within an hour from un-packing it.

6 M EME – INNOVANTENNAS™ 6 ELEMENT LFA2 YAGI

The final station (and a story in itself) was the 6 m Moon bounce system. The team was inspired to give 6 m EME a try after being approached by Lance W7GJ in December 2018. He asked us to consider 6 m EME in our plans.

Trying to find a suitable antenna design that could be built with materials available in Australia that met the weight and portability requirements was an instant challenge. In the end, a compromise solution was adopted which didn't quite have the desired gain, but at least was available and light enough to carry. The solution was an InnovAntennas™ 6 element LFA2 yagi, which was obtained second hand from Paul VK4MA.

The 6 m EME first trials of the antenna only, were run back in February 2019 from Corny Point on the Yorke Peninsula in South Australia. This was our first time ever attempting 6 m EME and we were complete novices to the mode. We were stunned and pleased to work 6 stations that day. We even saw our own echoes off the moon at one point!

Progressing the system design further demanded we solve the support mast problem. Spiderbeam™ again helped us with another one of their 10 m aluminum masts (www.spiderbeam.com). We must thank Rick DJØIP and the team at Spiderbeam™ for their support with the project. Their products answered many of the DXpeditions needs.

Low loss Hyperflex-13 feed line then was sourced from Messi & Paoloni (messi.it) via Carsten VK4OA at RF Solutions in Australia (rfsolutions.com.au).

All of this finally came together as a working system during the second field test conducted in July 2019 back in Australia, much to the team's delight. This trial was conducted from a farm on Point Sturt on the shores of Lake Alexandrina 90 minutes SE of Adelaide. This time we tested the full system we intended to take to Tonga - end to end. It was a day of mixed results. Contact was made with one station, before the SPE 1.5-kFA linear amplifier failed (with the dreaded blue smoke escaping from the box). The antenna was working, but now we had other problems.

Our test everything strategy at least was working and at least it failed while we were still in Australia. However, the failure also threatened to disrupt all of our plans for 6 m EME from Tonga. We were wondering where to from here?

STATION EQUIPMENT DESIGN

To drive the antenna array, the team assembled three stations. Station one comprised an Elecraft K3S, MicroHam Keyer II, Codan 3020 power supply and an Elecraft KPA500 500W linear amplifier. Station one also was connected to a M2 Systems™ M6-1K2 6 m linear amplifier dedicated to EME.

Station two was very similar, with an Elecraft K3 (upgraded to the equivalent of a K3S), a MicroHam Keyer II, Codan 3020 power supply and a second Elecraft KPA500 loaned to the DXpedition by Matthew VK5ZM.

Station three, initially intended as a backup but quite often used in parallel

in the end, was an ICOM IC-7300 loaned to the DXpedition by Mark VK5QI & Arnie VK5NEX. This radio was the little radio that could. Even with only 100 W we managed contacts to Europe on it at times. Needless to say we were impressed for what it was, although it is fair to say its receiver did complain at times in the high level RF environment with all three stations running.

We also included a set of W3NQN designed filters obtained from Array Solutions in the USA to help reduce the 'close combat' interference issues we expected. The rest of the feed lines comprised over 200 m of Messi & Paoloni Hyperflex-7 – which gave us RG213 performance at substantially less weight.

It should be said that this wasn't the station design we initially considered. The original plan for station one was as to use the SPE 1.5-KFA linear amplifier, which failed during the EME trials. Unfortunately, that amplifier did not make it back from repairs prior to departure. Arrangements to try and replace the amplifier in time couldn't be finalized (due to insurance complications) so we had to make do with what we had. Needless to say the team was disappointed that we couldn't bring you a louder signal.

SUPPLYING POWER TO THE STATION

A critical consideration in our station design was how to protect the gear from AC mains voltage fluctuations. Recent publicity of failures on other expeditions due to mains voltage spikes had us worried. To combat this, the team managed to source three ferro-resonant MOV based mains filter protection units. This first line of defense was then backed up through 8 way SB80 Cabac power-boards which included further high energy MOV and spike protection.

Finally, we ran the low voltage side of the station through our Codan 3020 power supplies. These units (supplied to us by Ivan VK5HS at HF Radio Solutions - hfradiosolutions.com.au) can manage large voltage excursions on their inputs while maintaining a steady output to the transceivers. Designed by Codan Communications (codancomms.com), a global commercial HF communications manufacturer based in our home city of Adelaide, these supplies are specifically designed to withstand unreliable mains power systems. They just kept on running despite some of the bumps and kicks we saw in the mains while we were there.

IT NETWORK & CLOCKS

On the "IT" side of the equation, all three stations were driven by Windows 10 based laptops networked on WiFi. Each one ran the N1MM logging software as well as the necessary digital modes applications. The central logging machine also ran the ClubLog livestream daemon and provided the Internet firewall connectivity through the resort's WiFi/ADSL service.

One of the critical functions of a modern DXpedition station is the need to maintain clock synchronization, not just for logging but more importantly to support the WSJT-X suite of software. To achieve this, the central machine also was attached to a Ublox7 USB GPS which used that as a clock reference. This was then distributed via the inbuilt NTP server found in Windows 10 Professional (which one of the machines fortunately had a licence for) to the rest of the machines on the network. They then used the BKT-TimeSync software written by IZ2BKT to maintain their clocks from the local NTP server on station one. This proved very effective, once Andrew VK5AKH resolved some networking and firewall issues.

(Visit for details about the time synchronization software).
www.maniaradio.it/en/bkttimesync.html

TRANSPORT – IT WON'T FIT!

By the end of April, it rapidly became clear we were in trouble with weight. There was no way we could fit everything into cases and stay under our 5x 23 kg limit. The antennas alone now weighed in at 4x 32 kg. Alternative shipping arrangements had to be considered.

Through the generous sponsorship support we received, we were able to

The team ready to depart Adelaide (L-R VK5XDX, VK5GR, VK5SFA, VK5AKH)

consider freighting the antennas ahead of time. After weighing the options, I approached a local freight forwarder I had used before in Australia and obtained some quotes. I also approached Pacific Forum Line in Tonga to handle the freight at the other end of the journey.

Eventually we decided that airfreight was the best compromise for reliability, traceability and speed for surprisingly not that much more cost than sea freight. With that decision behind us, arrangements were made to ship the antennas and most of the feed lines to Tonga at the end of August.

The next problem was how to package the antennas. With airfreight our chosen mode of transport, packaging weight was just dead money. We had to find something strong and durable to withstand the rigours of international travel. This is where we had a stroke of luck. We discovered ski case manufacturer 'Sportube' who made adjustable length PVC cases that were light but strong. We were then able to track down an Australian distributor and placed an order.

We couldn't be more impressed with the result and the cases passed through the entire trip unscathed. We would happily recommend these to anyone looking to transport antennas by air in the future.

MURPHY STRIKES AGAIN!

Now that we were committed to freighting the antennas the pressure was on to complete all of the testing and validation work. Fortunately the rest of the testing proceeded smoothly and we submitted the freight on time at the end of August. We then began the nervous wait to confirm the antennas had arrived and were available for collection.

The actual journey for the antennas took less than a week, using Air New Zealand's freight service. However, once they arrived in Tonga, we again had to adjust our perspectives while things progressed at a methodical and steady pace according to "Island time". All the while, the deadline for the team's arrival drew closer. My inexperience at dealing with international freight also complicated matters when I realized that Tonga customs needed the keys to the cases. It hadn't occurred to me to arrange to courier them to the freight handlers ahead of the shipment, which hampered efforts to get customs and quarantine clearances for the antennas. Fortunately "universal keys" (bolt cutters) were available and I duly authorized their use.

Then a near disaster struck. The long serving Tongan Prime Minister, Mr Akilisi Pohiva, passed away while in office, placing the country into mourning. A string of additional public holidays were declared and government services mostly shut down for over a week. It clearly was a difficult time for the people of Tonga. It was also a critical stage for us, threatening to derail the start of the DXpedition by potentially leaving us without the bulk of our antennas.

After many phone calls to Tonga, our contact at Pacific Forum Line, Mary Mahe, worked some magic. With 5 days to go before our arrival, news finally came through that the freight had passed quarantine and had been granted temporary duty free import status. We must absolutely thank the good people in PFL Tonga for their help here – they saved the day!

DEPARTURE DAY – SEPTEMBER 22ND 2019

After nearly 12 months of planning, numerous setbacks and much testing, we were finally ready for departure. The team assembled in Adelaide Airport at 9:30 am Sunday September 22nd and checked in all of our luggage. After a last meal with family we cleared customs and headed for the gate. We boarded our Air New Zealand 787 flight bound for Auckland, New Zealand settled back and relaxed before the flurry of activity we would face on arrival in Tonga.

That night, on arrival in Auckland, we slept at the airport hotel, ready for the next morning and the final leg of our journey to Tonga.

Tonga in sight

DAY 2 – NEW ZEALAND TO TONGA

After a good night's sleep we boarded the plane for our final leg. The flight was again uneventful and the service first rate. Finally after nearly 3 hours in the air we caught our first glimpse of Tongatapu Island and our home for the next 2 weeks in the Kingdom of Tonga!

Finally, with everything going smoothly, we landed, collected all of our bags and cleared customs. We then met local amateur Christian, A35CS, who helped us with the logistics of transferring the team and all of our gear 50 minutes across the island to our accommodation. We are greatly indebted to Christian who had patiently helped answer many questions we had in the preceding 6 months.

The team then split up, with Steve VK5SFA headed directly to the resort to meet with the owner, Andrew VK5AKH headed with Christian A35CS to find food


The capital - Nuku'alofa, Tonga

for the first couple of days and I headed to the freight depot with Oly VK5XDX to collect the antennas.

At the freight depot Mary from PFL had everything waiting for us. With our antennas loaded we then headed to the accommodation, happy that all of the equipment and antennas had arrived.

NOT QUITE AS PLANNED

You will also recall I mentioned there was one more wrinkle with the venue earlier. Well, the moment you finally arrive on site is usually one of nervous anticipation for me. Despite all of the research and discussions beforehand, you never quite know what you are going to find. This was true again here.

I had been working in part from Google Earth satellite photos as well as with photos from the resort owners. I had a hint of a problem, just before leaving Australia, when the Google imagery was updated. Since the original photos taken back in 2016, the scrub around the resort had grown substantially and part had returned to being jungle. This meant we lost the originally planned location for the 30 m 4-square. This would need some creative thinking…

FIRST ANTENNA ERECTED

The first antenna to be unpacked was the multiband vertical. This allowed us to activate A35JT for the first time that evening. This presented the next hurdle. The sand pegs we brought with us proved to be completely ineffective in the shell grit based soil on site. We were forced to improvise with what we had. The solution was to hammer 4 foot long pieces of drift wood into the ground and use those as guy anchors. That job completed, we tuned the antenna to 40 m before heading inside to set up the first station.

By the end of the day we actually found ourselves ahead of schedule which gave us time to catch our breath and enjoy dinner at Holty's Hideaway across the road. Run by ex-pat Australians, Holty's served great meals and hospitality – a great welcome to the island.

After dinner, we returned to the station and were ready to call CQ. At 06:44z on Monday September 23rd 2019, after more than 12 months of planning, we were ready to call CQ as A35JT!

Alex VK2PRC answered with good reports being received back in Australia. A further 340+ contacts were made on SSB and FT8 that night before we retired early to bed to be wide awake and ready to start the big build the following day.

Multi-Band Vertical by the beach

VK5AKH operating A35JT – Day 2

DAY 3 – THE BIG BUILD

Today was a very important day for the DXpedition as we erected all of the antennas. We split into groups to tackle each project.

Oly VK5XDX started work on the 40 m 4-square array. The first challenge there was threading it through the palm trees while managing the elevated radial fields. Each antenna had 8 sloping radials plus two sets of guy ropes to hold it in place. You can picture the end result looking like a laser field in a Hollywood movie. We again faced issues with pegs that wouldn't hold in the very coarse soil, which was in part addressed by using trees as guy anchors in several cases.

We also had problems with the 12 m fiberglass fishing poles splitting. They are not made to take great lateral twisting loads it turns out. Fortunately, Oly was able to make repairs, plus we had a spare pole with us just in case.

The 4-square antenna is not quick to erect either, and even with help it took most of the day into the early evening to complete the installation.

Meanwhile, I started work assembling the 6 m beam. This was one of the key projects for the day, as it needed to be ready for the first moon bounce attempt at 3 am local time the following morning.

While the beam was bolted together, Andrew and Steve worked on preparing the SpiderBeam™ 10 m mast. Having given up on the pegs, the tower was now located where three suitable natural guy anchors could be found. In the case of 6 m, two trees and a verandah post were perfectly located.

Raising the 6 m antenna was a tense affair too. The beam and tower combined are heavy and stability was an issue if it got caught in the wind. So, with the whole team in attendance, the mast was slowly pushed up to full height. Fortunately, luck was with us and we were able to cross another project off the list

The next antenna to be tackled was the 20-10 m G3TXQ HexBeam. Andrew led the charge assisted by Steve. This beam, designed and supplied by Ant MWØJZE, is very light weight for its size (~6 kg) and is a dream to assemble and mount on the portable tower. Again we used trees and other fixed objects instead of pegs to rig the tower.

VK5XDX erecting the 40 m 4-square

Erecting the 6 m beam – a team effort

VK5XDX erecting the 40 m 4-square

VK5GR assembling the 6 m beam

The only real catch was that the antenna was almost in the canopy of a coconut tree. When it was dry this wasn't a problem, however when it rained, issues appeared particularly on 17 m. The VSWR would climb to nearly 2:1 until the water dried off the leaves. This caused some consternation the first time it happened, until we worked out the cause.

As the last of the antennas for day 3 were being completed, work began on setting up station 2 and 3 in the radio room. The only antenna left for the following day was the 30 m 4-square. We would head scratch on where to put it in the morning.

DAY 3 – ON THE AIR

After a day of hard work, the last thing to do was to retune the multi-band vertical to 80 m. That completed, the team retired back to the radio shack and got down to business on air.

We selected 80 m as the first band to open and started calling CQ using FT8 standard mode on 3.573 kHz at 06:36 z – just to let people know we were around. Very quickly we had an enormous pileup, so we switched to 3.567kHz and Fox Mode. We managed to contact with stations in North America, Japan, the Pacific Rim and Australia, as well as the occasional South Americans.

It should be said that for our team, working South America was always novel, because they are so hard to work from home in VK5 (where most of that continent is only accessible via trans-polar paths). As a result, we always made sure we replied to any South American call we could hear.

While 80 m was running, I set about configuring the 6 m EME station for action early the next morning. Then it was placed on 40 m ready for Olgierd to test the 40 m 4-square. He had completed the final touches on the 40 m 4-square antenna in the dark and was itching to fire it up and see how it would run (it had been a 12 hour marathon setting it up).

At the same time, we saw the noise floor rise across the board as the sun set. This started a hunt for the source across the resort. We discovered that the main cultprit was the LED bulbs used in most of the light fittings around the site. After throwing many circuit breakers, we were able to quiet the site back down and get back to radio. At that instant, the decision to book the entire resort out paid dividends. The level of control that brought is what saved the DXpedition from being plagued with high noise floors for the rest of the trip.

6 m EME station – M2 Systems M6-1K2 Linear, Elecraft K3S, Elecraft W2 Watt Meter Eltek 2 kW 50 V Power Supply, Microham Keyer II and MacBook Pro

With the noise problem solved, Olgierd took the chair and warmed up the (F) key on station 1, calling CQ on 7.033 kHz CW at 08:29 z. After many North American and Japanese stations the band started to open towards Europe around 13:30 z. The first stations from that region were mostly Eastern Europeans. As the opening progressed, more and more countries became audible. The most westerly station worked the first night was from GW land. Unfortunately, 40 m had to be cut short at 14:30 z, due to the commitments to the 6 m EME community, and the pending moon rise at ~3 AM.

6 M MOON BOUNCE SUCCESS

I arrived back in the shack about 30 minutes before moon rise. Earlier in the evening a band survey had been completed, and the nominated frequency had been changed due to local birdies in our receiver. Everything else had checked out and we thought we were ready to go.

It seemed however that Mr. Murphy would not leave us alone. He wanted one last game with us. Just as we were about to start on 6 m, a new noise source appeared that took the noise floor up to S5-6 on 6 m. It wasn't there when we set the station up, and given the work around the site to remove other noise sources we had control over (LED lights being a principle source) we were suddenly panicking that everything to this point was about to come to naught!

After a scramble to turn off anything we could find, we tracked this last problem down to one of our laptop power supplies which had failed spectacularly during the evening. It was no longer charging the machine, and instead had started radiating spurious broadband noise everywhere (including HF). We were relieved when we pulled the plug and the noise floor fell back to near zero.

FIRST EME CONTACT

Our first successful EME QSO was logged at 15:08 z with OH6MIK, followed 10 minutes later by G8BCG. Over the next hour, we also made contact with KG7H, GM3POI, W7JW and K4PI. After all the dramas back in Australia it was a relief to finally be out there delivering what we promised to the EME community.

VK5GR driving the 6 m EME Station

There was one major problem that the 6 m EME station brought to the DXpedition however. We found we couldn't run EME and most HF bands concurrently (we had suspected this might be the case). So, we had to curtail HF operations during the EME windows (which wasn't popular with the rest of the crew towards the end of the moon bounce activity). I shortened some of the EME in later days to combat this in order to maintain crew morale. As it became clear we didn't have enough antenna gain without the additional boost provided by ground gain, this was no real loss to the EME activity either.

DAY 4 – A35JT HITS ITS STRIDE

By day 4, with all of the travel and most of the antenna construction out of the way we were ready to hit the radios. As soon as the EME activity closed, we were back on HF. 40 m sprung to life with 40 m FT8 contacts into Europe. After an hour as our morning gray line approached we switched to 80 m on 3.567 kHz and were rewarded with some of our first EU contacts on the band to R4, SV, OM, YT, I, HB9, TA, OE, EA and F.

The next band slot opened was 17 m SSB, targeting North America with the occasional EA8 thrown in for good measure. HF then went QRT again for the first moon-set EME pass targeting Europe. Three more stations, URØMC, S57RR and ON4GG, were worked on 6 m before moon set at 01:20 z.

40 m 4-Square installed among the Coconut trees

30 m 4-Square installed across the drive-way (telephone lines running through the middle)

MORE ANTENNAS!

It was during the mornings 80 m activity that we decided to erect a dedicated 80 m antenna as well. This would enable us to switch between 160 m and 80 m without having to retune the multi-band vertical. Fortunately, Oly was a very good throw, rigging a rope over a 14 m high coconut tree just outside the radio shack. With the spare coax and balun we had with us, an Inverted V antenna was rigged. It proved to be the workhorse antenna on 80 m for the rest of the trip!

Next, Steve started work on the final antenna to be erected, the 30 m 4-square. After wandering around and puzzling over the site with a tape measure for what seemed like ages, Steve and myself finally agreed on a compromise and decided to install it across the drive-way. It meant some tricky maneuvers to park the car without driving through the radial field, but that was a small price to pay. Steve with help from the team then completed the 30 m 4-square installation.

The final antenna project for the day was to tune the multi-band vertical down to 160 m. This proved much harder than expected. The ground conductivity was different compared to all of the places we had tested it back in Australia. Try as we might, we couldn't get the base impedance high enough to match the transmitter. Finally, after some experimentation, the right combination of radial length and antenna elements was found and we were ready to go on top band.

160 M OPERATION BEGINS

The plan today was to activate 160 m at sunset gray line and work it though most of the night. At 6:30 pm local time Steve started calling on 160 m FT8. It was still daylight in VK but we managed to work VK3GA as well as ZL3RJ and 3D2TS.

Olgierd (Oly) VK5XDX our crack CW Op!

By 08:30 z we were starting to work NA on 160 m as well as more VKs once darkness fell across Australia.

We also started up 20 m CW. Oly VK5XDX pointed the beam north and started calling CQ. This was the main EU opening we expected and we weren't disappointed, quickly logging contacts with DL, ON, IK, HA, SM, OH, OE, SP, EI, OL, F and of course plenty of JAs.

At 09:00 z we fired up our third station on the IC-7300 and commenced running 100 W of FT8 on 40 m. We were rewarded with contacts to PY while we provided a good opportunity for Japan to work A35JT.

160 m then really began to shine also. Around 09:00 z we started seeing South America. We hit the jackpot with a contact to CX shortly afterwards. A little later we also reached the Falklands with a contact to VP8EME.

20 m finally started to slow down to Europe, and with problems being experienced with the stations fighting each other, it was decided to give 30 m a try. Oly QSYed the CW station and started calling CQ on the 30 m 4-square array. Signals on 30 m were mostly from the Pacific rim with JA and VK dominating initially. Shortly afterwards North and South America were being copied including contacts to PY and Bob VP8LP in the Falklands.

Steve VK5SFA operating A35JT

Meanwhile 40 m to the US started to pick up and by 10:00 z stations on the east coast were being worked on FT8.

At 11:00 z 160 m switched to CW with Oly at the key again with immediate results into North America, Japan and Australia. 40 m and 160 m then ran through most of the night up to 14:30 z (03:30 am) with a mix of CW and FT8.

DAY 5 – ABOVE AND BEYOND!

The station started the day at 04:00 am activating 6 m EME for moon rise. We also experimented with running 160 m at the same time as EME and found that the two bands were in fact compatible. As a result, we were able to operate 160 m through our sunrise gray line window with great results.

During this session, we worked K2ZD, G4WBP, K5DU and eventually K5NA via the moon.

6 m EME Yagi on its Spiderbeam™ Mast

Meanwhile, on 160 m, we had our first European openings. Countries worked included UT, OH, S5, SV, DL, I and A4 in the Middle East.

At the conclusion of the EME session we switched to 20 m CW at 18:00 z. A mix of EU and NA stations was worked including down into the Caribbean. 20 m then switched to SSB at 21:00 z for a solid run into Japan.

As the 20 m opening faded we moved to 17 m SSB, bringing a new rush of callers. We were conscious of criticism of past DXpeditions that focused too much on FT8, so we made the effort to mix up the modes and bands as best as we could.

The EME moonset window then began at 01:00 z. Over the next 90 minutes a further 5 stations were worked including OH2BC, I4YRW, SP4MPB, ON4IQ and ES6RQ, This completed day 2 of EME operations.

From 03:10 z (around 04:00 pm) HF operations resumed. We activated three simultaneous stations, on 40 m, 30 m and 17 m respectively. Again, finding band combinations that would work together was a challenge. This was one area where FT8 proved useful as we operated FT8 with synchronized transmitters on both 40 m and 30 m simultaneously.

We also used FT8 as a propagation indicator, providing us clues to when the paths might support SSB. Estimating when SSB would actually work was harder than we thought, however, as the reported signal strengths could have very good SNR in our low noise receive environment, but the actual signal levels could still be quite low. None the less, it did alert us to when areas of the world potentially became accessible. It was using this principle that led us to switching the 40 m FT8 station to SSB at 04:35 z. We then operated 40 m through our evening gray line picking up quite a few European contacts along the way.

By 08:30 z (09:00 pm) we had eaten dinner in shifts, and the whole team was active in the radio shack. Oly commenced some 80 m CW operations while Andrew activated 20 m FT8. I then chimed in with some 30 m CW as well.

At 11:00 z, 80 m activity switched to 160 m with Steve at the helm running FT8. This was done to deliberately target the North American 160 m morning gray line at their end of the path – an opening we would try to exploit several more times over the course of the DXpedition. This is also where Steve went above and beyond being a DXpeditioner.

Clearly some people were not skilled in operating FT8. To help them out, Steve and later Andrew started emailing people who were calling and failing to make contact, offering them suggestions for how to solve their problems. PC clock issues were a common theme. Calling below 1.000Hz was another when using FT8 Fox Mode. This sort of coaching contact was warmly received by those contacted, and was the hallmark of the way the team conducted itself on air throughout the DXpedition.

DAY 6 – CHANGING CONDITIONS

Dawn on day 6 delivered more successful 6 m EME contacts with NJ6P, W6UC and N7IP during moon-rise. It also brought further contacts with Europe on 160 m FT8. Steve who had been up all night then retired as Oly took the controls. He again worked 20 m CW to Europe over the now familiar 18:00 z opening. This time we kept the EME running while HF was active to see if there were any chances for contacts as the US moonset window passed. We were rewarded at 19:00 z with a 6 m EME contact to Charles N8RR.

20 m by then was slowing down, so Oly moved up to 17 m CW to "follow the sun" as the morning wore on, able to run at 3-4 contacts a minute to North America and Japan, with the occasional VK thrown in for good measure.

OCEANIA, SOUTH AMERICA, AFRICA – CALL ANYTIME!

One of the early decisions was to implement the team rule that "if you are an Oceania, South America or African based station you can call us at any time". Spending time calling for those specific regions wasn't profitable normally. However, accepting a VK/ZL call in the middle of a CQ NA or CQ EU run made sense, as we found that it wasn't disruptive to the main QSO flow. We also considered it polite to work our local neighbours when we heard them.

Why did we do this you might ask? Too often DXpeditions come to "our patch of the world" and will not take calls from "the locals". We did not want to be seen doing that. We understand that countries like Tonga are often considered as semi rare DX, even to VK/ZL operators, given the lack of local activity from the Pacific Islands. Having experienced being ignored from our own back yard in the past, we felt it was a worthy statement to make that if you are operating in our part of the world, that it doesn't take much to support the small local DX community here while you are at it. I hope other DXpeditions in the future take some note of this and consider it in their DXpedition plans too.

WE NEED MORE ANTENNAS!

By midday 17 m was slowing down and was time for an operator change. We were also trying to determine the best way to get a second station on the air above 20 m without retuning the multi-

40 m Vertical in 15 m mode

band vertical given how touchy it had been to tune on 160 m. This is where Andrew had a stroke of genius.

Looking at the antennas we already had installed, he surmised that there was a good chance that one element of the 40 m 4-square, if unplugged from the array, might actually tune on 15 m. It was worth a try! So, out to the yard we went and quickly bypassed the 40 m 4-square controller. We then checked it out with the antenna analyser which showed a lot of promise! It at least matched fairly well at 1.6:1 VSWR across most of 15 m – close enough that the amplifiers were happy.

This unlocked some serious QSO making potential, with Andrew able to fire up 15 m FT8 at the same time Oly resumed on 17 m CW.

The next EME attempt was then due. At 03:00 z Andrew took the reins of the 6 m EME station solo for the first time to work through the MoonSet window looking for Europe. The conditions unfortunately were not very good this pass. A geomagnetic storm was brewing, disrupting EME communications. Stations in Europe were being heard at A35JT but there were no successful QSOs. Andrew did manage a successful QSO with JA7KVI at least, which marked a new continent for the EME operation.

At 04:00 z 20 m was selected and it was time for more SSB, this time with myself, VK5GR, on the microphone. Contact was made working mostly Japan and USA with a smattering of Europeans as well. Conditions to Europe began to improve by 06:00 z and we finally managed multiple contacts into the region.

VK5GR operating A35JT on HF

With a full complement of operators on board and sunset approaching we added 160 m FT8 to the mix as well as 30 m CW. We were rewarded with contacts again into North America on FT8. Meanwhile, the European 20 m SSB opening kept creeping westward with stations from France now making it into the log as well. At the same time, Olgierd was having success on 30 m CW into the same region. Finally, by 07:00 z we were hearing G stations on 20 m SSB, one of the hardest areas to reach, and managed a QSO with GØYCE.

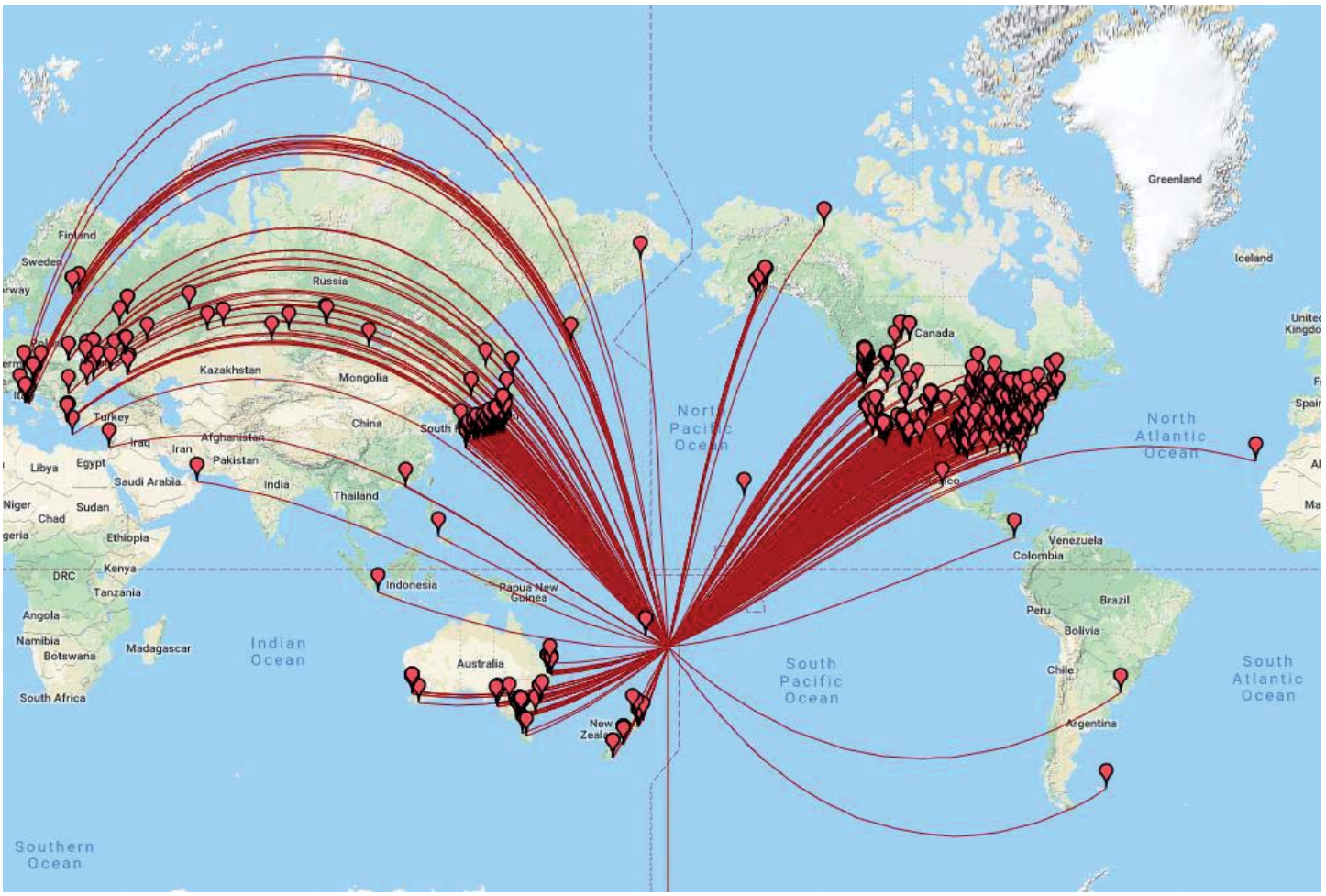
Andrew then took over 20 m and continued to successfully work Europe. Finally, at 09:30 z the 20 m SSB opening slowed to a trickle and the decision was made for Andrew to switch to FT8 on both 20 m and 30 m, while Oly moved to 80 m CW. This is where Andrew started getting inventive.

By now it was midnight in Tonga. To keep as many stations going for as many hours as possible, Andrew took advantage of the timed nature of FT8 transmissions. He networked the screens of two stations together using VNC and started operating two bands with one operator. This also eliminated interference between the bands as their transmit cycles were synchronized. This was a technique he would further develop over the next few days to maximize the QSO rate with the minimum number of operators.

Meanwhile Olgierd continued having success on 80 m, working South America, North America and Japan late into the evening.

160 M ACTIVITY CONTINUES

Andrew then moved the FT8 station down to 160 m and again started working North America through their gray line. This operating pattern brought great



success on 160 m for a band that antenna wise we had not tried all that hard to support. Across the whole DXpedition we managed to work over 600 stations on 160 m across 4 modes and 29 DXCC. Andrew fell in love with the band in particular. I'm sure this will drive his desire for further 160 m activity in the future!

3 STATIONS, ONE OPERATOR!

Once Oly called it a night, Andrew took over the 80 m station and also opened 40 m all on FT8. Normally, 40 m was unusable with both 80 m and 160 m running, however Andrew had a final party trick to try. He then set up all three stations to be workable from the central logging machine simultaneously. In this way, A35JT was able to maintain a presence on three bands at once with only a single operator remaining awake! The station ran in this configuration for nearly 6 hours that night – a tremendous effort!

DAY 7 – BEST LAID PLANS & HIGH BAND MAYHEM!

Day 7 opened with another EME attempt at moon-rise. 6 m conditions failed us however this time with no successful contacts made. It did alert us to keep watch on the higher HF bands however.

With the EME window closed, Olgierd resumed the 20 m operation, this time on CW to the USA. I then joined in with CW on 15 m (albeit much slower).

Olgierd (Oly) VK5XDX on CW

It had also been planned to run in the CQ WW RTTY contest from A35JT. However, the only team member who was enthusiastic was myself (as I have loved RTTY for over 30 years, since high school). As a result, the plans to running a Multi-One entry in the contest were shelved, and the contest start time came and went as we continued on CW instead.

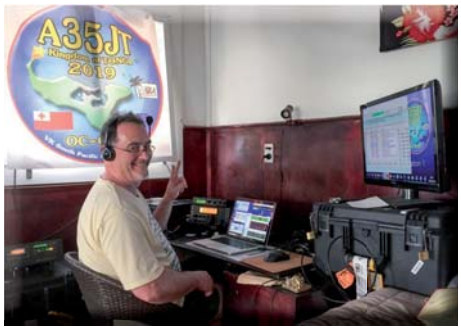
Around 00:30 z Olgierd changed places with Andrew and 20 m moved to SSB, providing a great opportunity for North America while Steve VK5SFA tinkered with 30 m to see if there was any sign of that band being open during the day. Steve did manage a contact into VK and later into ZL but not much more.

It was around 02:00 z, after occasional checking all morning, that an opening on 10 m was detected. Andrew QSYed to 28.485 kHz at 02:15 z and called CQ. Just how open the band was simply had to be seen to be believed. The pile up to Japan was enormous and very quickly Andrew was calling UP 5 to 20 kHz and still having problems separating call signs.

The problem actually started to slow down the QSO rate. If we had let it the pile probably could have grown to over 40 kHz given how strong the signals became as the Es opening only intensified.

While this continued, Steve jumped onto 15 m CW and kept that running finding many callers from Japan on that band as well before ultimately switching also to SSB. This truly was the day of the high bands.

10 m Pileup to Japan – VK5AKH operating



15 m CW Pileup to Japan – VK5SFA

At 03:15 z 15 m switched to SSB also, which brought renewed vigor to the pile from Japan while 10 m continued to power along. Then, almost as abruptly as it began 10 m closed, leaving Steve to continue activity on 15 m SSB into the afternoon.

BACK TO 6 M EME FOR AFRICA!

HF activity started to slow around 03:45 z which was perfect timing as we set up for first EME attempt targeting Africa.

We were concerned with the HF band conditions we were seeing that the ionosphere might not let our 6 m EME signals through. Fortunately that wasn't the case as today was the first window to South Africa on EME. Bernie ZS4TX confirmed 2 way contact with us via the moon, adding a fourth continent to our EME tally. We also heard a number of other stations but were unsuccessful at working them.

BACK ON HF

After moon set we returned to HF and commenced operations on 17 m FT8 from 05:30 z. I then took command of the station and started watching for the anticipated 17 m EU opening. Initially many JA stations were worked as we ran through until 07:20 z. But other than a few eastern Europeans the opening didn't extend any farther west.

Andrew then opened 40 m SSB also looking for Europe, and was met with greater success with contacts into YU, F, and EA.

We then broke for dinner before returning to air around 09:00 z on 30 m FT8.

RTTY CONTESTING AFTER ALL!

Finally around 09:30 z I couldn't resist any longer. I reconfigured one of the stations for independent logging, set up the RTTY software and started in the CQ WW RTTY contest with some search and pounce activity to get everything dialed in. Contacts with LZ, I, UA, SP, OM, HA, OL, DL, ER, UN, 9A, OE and EW were completed on 20 m. You couldn't wipe the grin off my face.

Meanwhile, the rest of the team manned 30 m and 160 m using either CW or FT8. At 09:30 z, Oly started operating 160 m CW, in order to completely capture the North American gray line through their sunrise. We weren't completely sure when the opening would start. Perseverance paid off when at 10:34 z the first NA station was worked followed by several more. Finally at 11:00 z (around midnight local time) we ran out of operators after the previous couple of nights of heavy activity and everyone retired to catch up on some much needed sleep.

DAY 8 – 10/12 M ROUND 2 + MORE RTTY CONTESTING…

I returned to the radio at ~17:00 z and QSYed the RTTY station to 40 m for a look. I was rewarded with the first RTTY QSOs on 40 m into Europe for the DXpedition before it faded. Andrew then tried SSB while I returned to EME. Conditions weren't great on the low bands however and the openings were short lived.

Our last attempt at EME on moon rise wasn't successful with no confirmed

2 way contacts. Probably the most unlucky station of all, however, was NN7J who I had copied for several days now but still couldn't complete a QSO with. I gave him an A+ for perseverance however.

At the end of the EME session, the team returned to 20 m SSB and 15 m CW. Andrew was rewarded on 20 m with contacts into the Caribbean while I worked North America and Japan on 15 m, also picking up contacts with Central and South America (PJ4, YV, HP).

On 20 m we were then able to put a rare country in the logs. Christian A35CS, who was our local support in Tonga called in to Andrew from across the island on 20 m SSB. It was great to get Christian into the log for another worked DXCC!

The bands were behaving very strangely today as well – a product of the solar storm. Conditions to North America on 20 m showed very rapid and deep QSB on all signals. Perseverance and patience was the key to making progress.

12 M OPENS WITH A BANG!

With 20 m becoming more unstable, we took the opportunity to listen around to see what else might be open. As a test call, we decided to try some 12 m FT8, just to see where we could be heard on PSK Reporter. It didn't take long for the Japanese to find us.

Very quickly the opening showed its strength and the caller queue filled to capacity. We opened up the number of slots to 5 and away we went. For a 15 minute period we had over 300 contacts an hour being logged, and over the following 3 hours we were often running 12 m at over 200 contacts an hour for sustained periods.

We then decided that if 12 m was this open then perhaps it was worth a look on 10 m as well. However this led us to a conundrum. At this point, we only had 1 antenna that could operate on both 10 m and 12 m – the HexBeam. What to do was the question?

10 M? YET MORE ANTENNAS!

We then pondered, could we do the same trick to the 30 m 4-square that we did with 40 m and operate it on its 3rd harmonic. Andrew and Steve quickly headed outside with the antenna analyzer in tow to find out. After adding a length of wire to the antenna they had their answer – it worked! So, now we could run 10 m and keep 12 m on the air at the same time.

30 m 4-square element on 10 m

Since we didn't have filters for 12 m and 10 m, the best way to exploit the opportunity was to use FT8 on both bands this time. Andrew took the controls of 10 m while I continued on 12 m. Immediately 10 m sprang to life to Japan as 12 m propagation began to diversity out to the US West Coast in one direction and Hong Kong in another.

6 m EME Array by Star Light

At 04:00 z we then decided to see if we could run both bands on SSB simultaneously as well. We were lucky that, with a combination of physical separation and polarization diversity, these two bands could operate at the same time without filters. We then had a very intense run on 12 m SSB to Japan while continuing to make 10 m SSB contacts. The sun may have disturbed 6 m EME conditions but it more than made up for it with contacts on the higher HF bands. There is nothing like the rush you get when working stations at very high rates.

FINAL 6 M EME CALLS

At the end of week 1, we conducted what would be our final EME session. This was the last moon set where we would see Europe before the planets no longer aligned (literally). We were lucky enough to work OH7KM and heard a number of others. Unfortunately due to the very short window, we weren't able to work more stations.

Over the 30 hours and 14 mins of EME time, we worked a total of 25 stations, and heard a total of 28 more. For EME rookies we were pretty happy with that achievement. Thanks to all of the stations who came looking for us. You helped bring a bucket list dream alive!

Some questioned why we dedicated so much time to making 25 contacts. Others realized the difficulty level involved. From my perspective, the challenge of being able to undertake moon bounce on 6 m at all was reason enough. Doing it from a South Pacific island just added that something extra to the experience.

6 M EME: SPECIAL THANKS

6 m EME wouldn't have been possible at all without input from a number of key people. Firstly we must say thanks to Lance W7GJ who provided the inspiration and remote help to make the attempt. It nearly stretched our resources to breaking point, but without your spark we would never have tried in the first place.

We must also thank Peter VK5PJ who coached us through our first attempt at 6 m EME back in February 2019 and who subsequently supported the DXpedition with the donated elevation tilt bracket and the Eltek 50 V power supply for the linear amplifier. Thanks also to Dennis VK5DEN who helped with some of the bracketry used to mount the antenna and a special thank you to Matt VK5ZM who helped greatly with many aspects of the trials in Australia.

On the sponsors side, the 6 m EME community was fantastic, helping us raise the funds needed to get the antennas freighted to Tonga. We couldn't have done it without our corporate sponsors either. The support from Spiderbeam™ with the tower and the help from RF Solutions and Carsten VK4OA plus Christian at Messi & Paoloni with the feedlines was paramount in getting the station on the air. Thank you to all involved!

BACK TO HF

After the end of the last moon bounce pass, Steve VK5SFA then took up the challenge on 20 m SSB. Again, it opened to Europe and with patience and persistence Steve worked both Japanese and European stations.

I then operated some 22 wpm CW on 30 m before Oly stepped up the pace once the pile up grew! I have a lot of practice to do to match Oly on CW. I'm glad we included such a competent CW op on the team.

Steve then moved to 40 m SSB and was rewarded with working Alberto P29LL and a large JA pile, while Oly continued worked Europe on 30 m.

RTTY CONTESTING RESUMES

Finally at 09:30 z, more to provide multipliers than anything else, I then returned to operating RTTY in the contest, this time on 40 m. After a short time in search and pounce mode, I settled the station on a run frequency and started calling CQ TEST. Stations were worked from South America, North America and Japan. It was, unfortunately, about to became very frustrating.

Initially the QSO rate wasn't too bad. Someone however decided that we were having too much fun and commenced DQRMing us. Try as we might, despite QSYing several times and using the antenna pattern control of the 4-square, within a few calls the carrier dropper would return. This completely destroyed any rhythm in the pile and the channel descended into anarchy.

The problem was then compounded when I would reply to a particular call sign (having waited for a break so I could transmit again as I was running simplex in the contest) only to have other callers continue calling over the top of the station who was replying to me. This would go on sometimes for 7-8 repeat calls – often breaking QSOs that I couldn't complete and receive my report from. This was a very disappointing outcome. I persisted for nearly an hour, hoping the DQRM and the unruly callers would calm down, but to no avail. Frustrated I shut down RTTY and walked away. It wasn't just my own contacts that were being broken but other people's contest multipliers as well. It really wasn't fair on anyone under those conditions.

I then returned at 12:50 z to give it another try. This time I had more success, managing to run for another hour before finally giving up when the DQRM returned. The callers were no better behaved either. In the end, I made the decision to abandon any serious attempt at a worthwhile score in the contest, disheartened and disappointed. I vowed to come back later in the week when I could run RTTY in split mode and also use the cluster more effectively to advertise my activity.

It's worth noting that the only way I managed to persist with the interference for as long as we did was through the benefits of the 4-square array. Often I was able to put the DQRM into the null and work stations off the side of the pattern to the north and east. Having the ability to switch beam direction almost instantaneously (with the exception of the TX interlocks) brought amazing flexibility to the 40 m contesting station. As a result, I will absolutely be looking to install and use the 4-square for other contests from back home in the future.

160 M CW WITH STEVE VK5SFA

One of Steve's objectives during the trip was to operate 160 m CW. A keen 160 m operator back home, Steve was looking forward to testing his CW skills in a noisy tropical environment. To his credit, he ran CW through the NA gray line opening again starting around 10:30 z. He stuck at it until 13:30 z (02:00 am) before heading for some sleep, working a good number of stations in the process.

It was then time to hand the station over to Andrew and Oly who started up 30 m FT8 and 40 m CW once more, adding contacts to the log in Oly's case throughout the night. This was a marathon effort, which rewarded us with many more contacts across Europe.

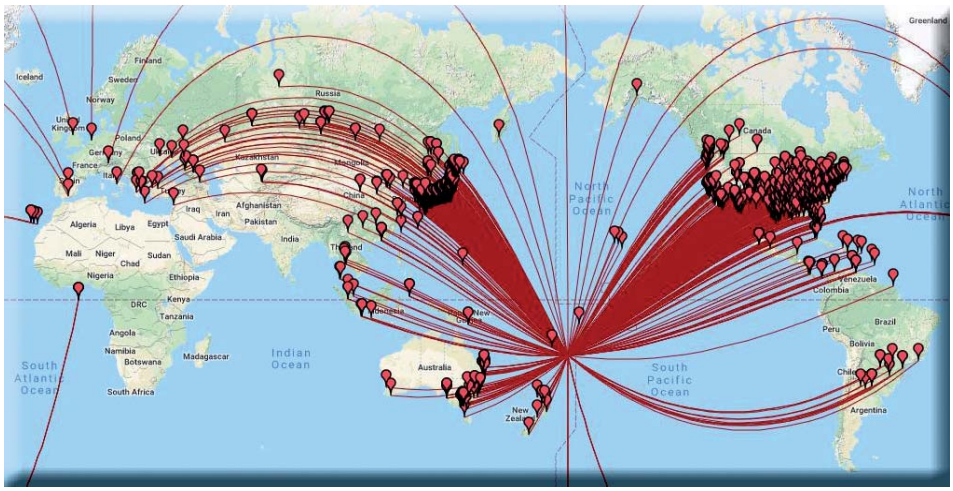
DAY 9 -PANDEMONIUM BREAKS OUT!

Andrew returned to the station at 18:00 z and opened the 20 m FT8 transmitter for business while Oly continued his fantastic run into Europe on 40 m. At 19:00 z I returned also to make one last effort at RTTY on 20 m.

I had some surprises with calls from Madeira Islands on as well as some South Americans. I settled on a run frequency and fortunately this time the pileup behaved and the source of DQRM also

10 m Contacts from Tonga – A35JT

12 m Contacts from Tonga – A35JT



15 m Contacts from Tonga – A35JT

stayed away.

We finally closed the RTTY contest operation at 22:00 z and reconfigured the logging machines back into their networked configuration. The live log was switched back on and normal operation resumed.

Oly then returned and it was time to open another new band slot for the DXpedition chasers. After the spectacular openings the previous 2 days on 12 m SSB and FT8 it was time to try CW. He rose to the challenge and was immediately greeted by callers.

Andrew then switched to 10 m and gave some calls on SSB, working USA and Mexico as well as Japan. It was great to see North and Central America on 10 m for the first time.

The team continued to follow the variable propagation throughout the day seeking out contacts from the fickle conditions.

Today marked a change in the team dynamics. My operating time was going to be reduced with the arrival of my family. I left the site at 11:00 am to head back to the airport to collect them – unaware of what was about to unfold.

WHERE THERE IS SMOKE THERE IS FIRE!

It all began with Olgierd smelling smoke around the site. Now this hadn't been uncommon during our stay, as the local population often burn excess leaf rubbish in the fields, so initially the team didn't think much of it. That all changed when his next observation was "can you hear a crackling sound?".

Everyone removed their headphones, and with looks of concern headed outside.

What greeted them was a large plume of smoke, rising from the scrub just north of the site. By the sound, it was a fairly large grass fire. Not knowing the potential severity, the team immediately sprung into action, firstly contacting the owners (who knew how to call the fire brigade) and then scrambling to take down antennas and clear a path for the fire appliances.

The 6 m beam and the HexBeam were both quickly lowered, as there were concerns that if the fire broke through the scrub the guy ropes would quickly burn through, felling both towers uncontrollably. The team then split up searching for water containers that could be used in case of ember attack. The 30 m 4-square antenna was quickly lowered and the radials were pulled in to clear a path down the driveway.

By this time ash was starting to rain down over the site and the team was getting really worried.

The fire brigade then turned up, and seemed remarkably casual about the whole affair. They climbed into the bush and looked over the fire, which by now was only about 15 - 20 m away from the radio station (not that we could see the flames through the tropical foliage).

The team was somewhat perplexed, and kept closely watching in case smoldering ash settled on something it shouldn't and start a secondary fire. When the firemen came back they said there was nothing to do. They were water poor (as is the case across the island – no high pressure water mains here) and the most expedient course of action was to let it burn itself out when it reached the thick scrub. They were absolutely correct, knowing their home environment very well. Our team members were still on edge however, coming from Australia, a land where bushfires are an all together much more dangerous affair. It was still unnerving to say the least.

In the middle of the mayhem, I returned with my wife and daughter, finding gates wide open, smoke in the air, a fire truck in the drive way, no antennas to be seen and people running everywhere. It took a few minutes to work out what was going on. Fearing the worst, I decided to quickly take my family away and leave the situation in the capable hands of the rest of the team.

After another hour, the all clear was given and we returned to site. Order returned, the antennas were re-established and slowly things returned to normal. It was a hell of a way to welcome my family to Tonga however.

Antennas down and the Fire Brigade in Attendance

75 M SSB ON AIR

This evening was Steve's last night on the island, so we planned to try a new band/mode. The 80 m inverted V was retuned up to 75 m and we opened with SSB on 3.775 kHz.

For the curious, the choice of 3.775 kHz might have seemed strange at first. However, there was method in our madness. Firstly, the VK 80 m SSB DX window extends from 3.776 – 3.800 kHz and secondly, the JA SSB window finishes at 3.775 kHz. Our plan was a simple one, operate UP 5 for VK and North America and operate DOWN 5 for Japan. Easy!

All up we made 167 contacts on 80 m SSB from Tonga including contacts with VR2, UN, W, JA, VK, ZL, P29, XE, KH6, KL7, UA0, VE, HC, HP, 3D2, FK and EA8. What's more, we had a lot of fun opening another unusual slot.

In fact, operating unusual slots became the theme across the second week. We kept opening more and more unusual slots, providing entertainment for our operators and the Amateur Radio community in general, a diversion perhaps from the regular diet of CW, SSB and FT8, but one worth taking in the end.

40 M CW GOING STRONG

All while 80 m was operating 40 m CW was going gang busters too with a solid run of contacts from across North America and Japan. The opening then extended into South America with PY and FY both making contact with A35JT.

We all were somewhat envious of the contact with French Guiana in fact. While the path to A35 from FY isn't too monstrous, from VK this path is very rare indeed. In fact, my only ever contact with FY has been long path over the NORTH pole. It was great to see the Kourou Amateur Radio club station on the air and to be able to work them from A35JT at least.

CALLING CQ JA 160 M FT8 – OPERATING SPLIT 1840/1908 KHZ

Later that night we set the radio up for an attempt at Japan on 160 m FT8. Running split (more due to antenna tuning ranges than anything else) we transmitted on 1.840 kHz and received on 1.908 kHz working quite a number of JA amateurs in the process. This required some trickery with the WSJT-X software as we found we had to run it without rig CAT control (Radio = NONE in the settings), so prevent the software from overwriting the wider split in the radio than it was expecting.

DAY 10 – FAREWELL VK5SFA

Steve VK5SFA operating as A35JT

Steve was unfortunately never able to stay with us for the entire DXpedition and today was his last day. After packing up his gear he sat down for one last turn at the controls.

He began operating 12 m SSB to North America and Japan including the occasional contact into the Caribbean. Contacts slowed, so he moved to 15 m following the propagation. He was immediately rewarded with an intense Japanese pile up which lasted nearly an hour before he followed the propagation again up to 12 m.

Again he was met by another stampede. I'm pretty sure he is now hooked on DXpeditioning! Hopefully we will see Steve join us on future adventures as a result.

Finally, exhausted, Steve said fare well and we packed his gear into the car. I then drove him to the airport for his flight home to Australia.

…AND THEN THERE WERE THREE!

That evening, Andrew started searching for different openings and paths on 15 m. We had not operated 15 m after 04:00 z until now, so we were interested to see what would appear particularly from Europe. Around 08:30 z we were rewarded with multiple calls from SV, plus contacts with S5, UY, SV9, TA, OD and R6 using FT8 before 15 m closed around 09:30 z. While that was going on, Olgierd made full use of the 20 m European

Andrew VK5AKH and Olgierd (Oly) VK5XDX

opening again working many countries on CW.

I was then able to return to the shack around 10:00 z having made the 2 hour round trip to the airport and spent some time with the family. He kicked off 30 m and was rewarded with a contact to Bob VP8LP. Bob is another hard to work station from VK5, so it was great to see him taking an interest in our operation out on A35. He was a regular among the slot chasers as we hopped around the bands and modes.

Around 11:20 z as 20 m was closing, Oly then switched down to 160 m – to be met with much quieter conditions this evening. It paid dividends immediately with a run of contacts into North America again, before switching to 30 m at 14:00 z and continuing the same.

Andrew, who had gone to bed early, then woke at 14:30 z with the aim of giving 40 m SSB another run. It paid off, with plenty of contacts into Europe. This time he used the IC7300 through one of the KPA500 linear amplifiers to great success.

Andrew on the IC7300 + KPA500 driving 40 m SSB

DAY 11 – FT8 MUTINY?

As dawn broke on Day 11 the seed for our own internal operator mutiny against FT8 began. Our team certainly understood the weak signal value of the mode and the ability to operate through the pile ups at high rate. However, we are not robots, and the mode lacked any sort of tactile feel for the DXpedition operators.

One particular complaint was that in Fox and Hound mode you can't even see the stations calling on the channel as there is no monitor window in this mode. The software only presents a list of call signs the computer has picked out as being people who are calling you under the right conditions. Fox mode was efficient at working stations – for sure – fun for the operators to use and drive – not so much.

There was general agreement that for 160 m when operating in FT8 standard mode that it absolutely had its place. Indeed on that band, where you have to nurse QSOs through the static crashes, it was challenging to operate and rewarding for the operator. It was engaging for the participants on both ends of the circuit. A lot of that interaction is removed on the Fox side when running Fox and Hound mode however leaving you little control over the pileup behavior and throughput, and indeed little perceived connection with the people you were working. It was very hard to sense the progression of a QSO and so you were left helpless to intervene to help to a successful RR73. Something had to change.

RTTY & PSK ON THE AIR

What was our solution? A return to the traditional digital modes! It also became a slot chaser's paradise. We made it an in-house game when we opened a new slot to predict how fast the "regulars" would find and work us. I am sure it was as much fun for them as it was for us.

Andrew and I led the charge, with me operating RTTY and Andrew running PSK31, (after finally figuring out how to get FL-Digi to transmit through a MicroHam Keyer II). Andrew's first digital mode love over 10 years ago was in fact PSK31. His face lit up when he once again was able to work stations on PSK

After the mayhem in the RTTY contest, it was nice to be able to operate split again. I opened RTTY on 7.044 kHz at 17:50 z and immediately attracted callers from Europe and Japan. Then, at 19:00 z, I QSYed to the 20 m band where my first caller was Bob VP8LP. He was followed by a steady stream of North and South American stations, with some Japanese stations in between.

Olgierd then took command and switched the RTTY station to 17 m for some more CW targeting the Americas.

Andrew meanwhile started calling CQ on PSK. Initially callers on were slow, but the more he called the more activity it produced. It seemed lots of people had perhaps forgotten how to use the mode. It actually reached the stage where he needed to start operating PSK on split frequencies – this time using the phase UP 200 Hz. Most people quickly got the idea and the result was a steady stream of PSK contacts making it into our logs.

I then returned to the shack at ~04:00 z for a pre-dinner run on 30 m RTTY. 30 m was very open – with contacts coming from around the globe! It was one of those times where you could work every continent at once on the band with successful calls to UT, PY, JA, R7, KH6 and K.

It was this night, after midnight as it turns out, when one of the rarest slots of all made an appearance. For some fun, myself and Andrew decided to activate some RTTY on 160 m. Down to the digital modes segment we went on 1.808 kHz where I started calling CQ. Low and behold, after a cluster spot or two, we were at least heard in Australia. Luke VK3HJ was our first customer. Shortly afterwards we worked K5RK, VK3BDX and N6TI. Not a long run but fun none the less!

VK5GR driving 160 m RTTY

DAY 12 – SLOT AND DXCC CHASING

As the team closed in on 15,000 QSOs we relaxed a little more and had some fun on the bands. It became a game to open even more unusual slots and see who would work us. No one made a clean sweep as by the end of the DXpedition we had worked 36 HF slots + 6 m EME. Three Japanese amateurs took out the honors however for top slot chasers with it being shared between JA4DND, JAØFSB and JA2VMU.

In the DXCC stakes, building our DXCC totals saw us initiating some calls and chasing other stations ourselves over the last few days, including saying hello a number of times to our neighbours on ZK3A. By the close we had managed contacts with 133 DXCC in 12 days within our 15,000+ QSOs.

Day 12 also saw us continue with our legacy digital modes operation, starting with a run on 17 m RTTY to Japan and North America. I must admit, finding a frequency to run these modes on 17 m was hard. Band planning within the digital segment on 17 m is something IARU needs to take another look at.

We found that the 15 kHz allocated on 17 m simply wasn't enough when you had other DXpeditions on 18,095 running FT8 Fox mode, the main FT8 channel now on 18,100, and now FT4 trying to lay claim to 18,104. With the continuing popularity of digital modes, perhaps it is time the CW users gave up some of their excessive 30 kHz on the WARC bands and let digital expand down to 18,090?

In the end, we just ran RTTY over the top of what appeared to be a near empty channel on 18,106 in the absence of any other viable alternative. We ran PSK on both 18,100 and 18,106 also in amongst the FT8. It really wasn't a great situation, but there were few alternatives given the

number of DXpedition stations about.

Meanwhile I activated RTTY on 21.084 kHz, eager to see a real JA RTTY pile again. I was rewarded almost immediately with the pile spreading up the band, actually getting close to over-running ZK3A on 21.090 at one point who was running FT8 Fox mode. The QSO rate was over 140 too, which was pretty good for RTTY.

MORE PSK – 17 AND 12 M

After RTTY, Andrew switched to 17 m PSK and continued the fun. JAØDAI won the first in slot chase this time, with JHØINP and VP8LP coming 2nd and third respectively. The band slot contest became even rarer when he switched to 12 m, running PSK on 24.924 kHz.

Later in the day, Andrew QSYed back to 20 m PSK to work North America. What was the attraction you might ask to run this old mode? It was the ability to have an actual QSO where you could type in messages and get an intelligent reply. It wasn't just pre-canned messages, something our operators very much appreciated.

Andrew working 20 m PSK

DAY 13 – WE FINALLY TOUR TONGATAPU!

This was our second Friday on the island and our thoughts were now turning towards packing up and heading home. At the same time, we hadn't really seen much of this island paradise until now. It was agreed we would head out for a few hours and tour the highlights. Our stops included the Three Headed Coconut tree, Anahulu Cave, The Blow Holes and Tsunami Rock.

The Blow Holes

Anahulu Cave

Ha'Atafu Beach

Tsunami Rock

Three Headed Coconut

DAY 13 – ON AIR

In the last 48 hrs on air, we focused more on bands and slots that we hadn't spent a lot of time on. 20 m FT8, 80 m FT8 and 30 m CW were given priority during the evening. Europe was particularly for FT8 this time to give more of the smaller stations their chance.

Olgierd also made one last effort on 40 m CW using the 4-square array from around midnight to dawn on Saturday.

This was also the last night we would have a full complement of three transmitters available. We had a time crunch problem looming. We wanted to participate in the Oceania DX Contest, however it finished late on Sunday night, with the team flying out Monday morning. This meant much of the pack up needed to occur Saturday and Sunday during the contest.

DAY 14 – TEARDOWN BEGINS ALONG WITH THE OCEANIA DX CONTEST

The first antenna to be packed for shipping was the 6 m beam and tower. It had been torn down and partly dismantled in a hurry the previous weekend with the fire, but today saw it put back into its travel case. We also packed up station 3 and rearranged the radio room so that the furniture could be returned to "near" normal, saving us a major task during final tear-down.

Meanwhile, on the air, the activity continued and our DXCC count steadily climbed. We spent today trying to work more first time stations (ATNOs in particular) rather than the slot chasers, so we focused on consolidating activity on the primary bands and modes.

Running 20 m and 30 m together on FT8 at sunset netted another great run of European contacts. 30 m then moved to CW and 20 m moved to SSB for the start of the contest.

Unfortunately for us, the contest start time of 08:00 z was too late for SSB into Europe which was closing as the contest started, so we moved to 40 m instead, which was a struggle. It may be a DX contest, but we found the band full of Oceania stations swapping contacts between themselves. It was extremely difficult to find a run frequency, and search and pounce was hard work when people were called by an unexpected callsign with an Australian accent. We were also surprised by the lack of North American stations as well. It seems many were asleep? That or the band wasn't open.

Realizing 40 m was futile; we started looking for other opportunities. For fun, we gave 160 m SSB a try and at least made contacts into Australia, handing out contest multipliers in the process. When that short run of activity dried up we moved to 80 m, managing to work the west coast USA as well as VK.

We decided to then give 40 m another try, hoping to work North America across its sunrise gray line. If they were there we couldn't hear them unfortunately as we were over-powered by stations in our region instead.

Meanwhile outside of the contest, Olgierd had been very productive on 30 m CW up until 13:00 z. Then our contest ended for us competitively when we lost power. This was the first lengthy failure we experienced during our stay, and effectively ended out Oceania DX Contest participation. Power wasn't restored until daybreak, loosing us 5 hours of prime 40 m openings to try to exploit to Europe.

DAY 15 – WE ARE A MULTIPLIER WHILE WE PACK

VK5XDX and VK5AKH – Last Day

After the frustrations the previous evening and the loss of power, we decided we would only intermittently work the contest and return to being just a DXpedition instead. This freed up operators to start the antenna teardown in earnest. The plan was to drop the 30 and 40 m antennas first, then the 160 m antenna would be lowered and packed followed by the 80 m dipole.

The lucky last antenna would be the 20-10 m HexBeam which would give us one last chance to Europe that night before shutdown.

We spent some more time on the WARC bands today as a result of the decision not to continue in the contest. This paid off with more contacts on 12 m to Japan, USA, Mexico and Caribbean.

15 m CW then had a turn on the beam again facing North America. Oly then also moved down to 17 m and was rewarded with contacts into the Caribbean and Mexico as well.

15 m CW Station

The station then went QRT for a few hours in the afternoon as the pack up continued in earnest. The 30 and 40 m 4-square antennas were dismantled and we started cleaning up and bundling the bulk of the gear into its cases. We couldn't have hoped for a better result with these antennas given the months of work that went into creating them and felt that they had definitely been worth the effort to design and build them.

We then progressed around the site tidying up and returning everything to

where it came from. By then it was dinner time, so headed across the road for an early dinner at Holty's before returning for one last run on air.

FINAL CALL – 17 M SSB

After a couple of quick contacts on our 80 m gray line to North America, we settled down on 17 m SSB with me on the microphone. 17 m SSB to Europe was one band we had not spent a lot of time on during this time window, as the available antennas were usually taken up with the 20 m station, so it was fitting to at least spend a few hours on 17 m before final tear down.

At 06:20 z I began our final call on 18.130 kHz SSB. Almost immediately it was clear the band was open to Europe so I asked Japan to stand by. Contacts flowed thick and fast, greatly aided by the patience from the Japanese stations who sat their listening.

In periods where it slowed down, I stopped calling for EU and specifically called Japan to give them a turn. It was notable that unlike at the start of the DXpedition, the patience of the Japanese had returned. We can only guess at why. Perhaps it was because we made sure we did give them a turn throughout the DXpedition. Maybe our sense of Aussie fairness had shone through, who knows. It is fair to say that without their patience this last run on 17 m would have disintegrated into anarchy. To all the JA stations on the channel that night I say thank you for waiting and for your patience.

Grant VK5GR – last calls of the DXpedition

Finally at 08:16 z the last contact was made with RC2A and A35JT went QRT. It was time to pack the last station and get everything ready for the start of our trip home in the morning. Andrew and Olgierd headed out into the dark to pull down the beam while I packed the station into its cases inside.

THE JOURNEY HOME

The next morning we woke to rain and showers. Given how good the weather had been during most of our stay we counted ourselves lucky. After a final clean up we loaded everything into the cars, and with Christian A35CS's help again we travelled in convoy, via Nuku'alofa to drop the freight off, to the airport. We couldn't have easily done this without Christian whom we owe a major debt of gratitude. Thank you for all your help Christian!

Christian A35CS

Packing the car

Antennas in their cases

We then boarded the plane to Auckland and said a final farewell to Tonga.

ARRIVAL IN AUCKLAND, NZ

On arrival in New Zealand, we were met by Jean-Phillippe ZL1RPL. He kindly offered to help us transport the team and gear to our accommodation. We then headed out for dinner. It was a great night meeting him in New Zealand, and you never know, we might have found a new team member for future DXpeditions (ZL7 perhaps?)?

Thanks Jean-Philippe for all your help!

Layover in Auckland meeting Jean-Philippe
(L-R) VK5XDX, VK5GR, VK5AKH, ZL1RPL

Due to airline schedules, we actually ended up staying in Auckland 2 nights. The next day was a quiet one, with some late exploration of the city in the afternoon, not to mention a round of mini-golf with the team and my daughter Amelia.

The next morning, Day 16, was the last day of our journey. We had an early start, reaching the airport at 06:00 am, in order to provide enough time for the customs processes around clearing our carnet for all of the radio equipment. Our Air New Zealand flight then lifted off on time, bound for Adelaide – Australia and home. It was the end of our Tongan odyssey.

THE STATISTICS

At the end of the journey, it is time to take a look at what was actually achieved. From the team's perspective we are happy with the outcome. The feedback we received when we were out in Tonga was humbling with many words of appreciation being received from people across the globe. Looking through the statistics, here are some highlights

TOTAL QSOs:	15,288
TOTAL UNIQUE CALLS:	5,859 (38.3%)
TOTAL DXCC Worked:	133

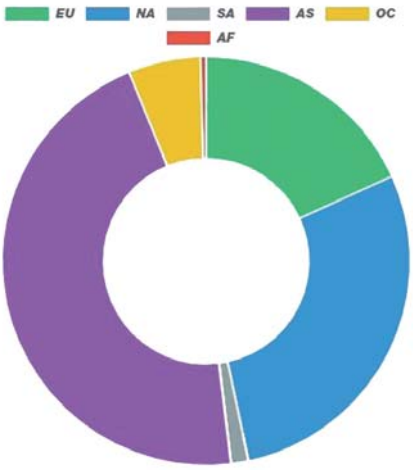
Looking at our targeted region, we are pleased with 18 % of all contacts coming from Europe. Given that most of those contacts involved 15,000+ km paths and that many were over the North Pole, we felt that the effort to target Europe has paid off. Naturally Asia is the leader as it is impossible not to work stations in that region from the Pacific. Ultimately, we hope we were able to bring quite a few ATNOs and band fills to amateurs right across Europe and the world with this DXpedition.

In the mode stakes, we feel the results vindicate the position we took, to try and balance the activities across all disci-

planes. When you have limited resources it is a real challenge to not be tempted by the speed of FT8 Fox mode. In the end, our band and mode choices reflected the balance we hoped for.

Breakdown by Continent

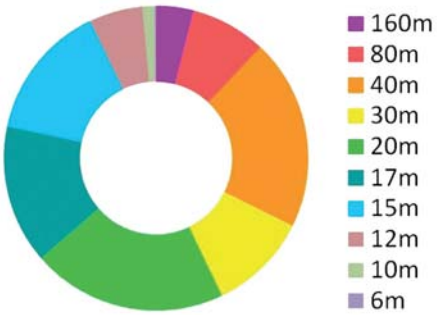
Continent	Total	Total %
Africa	69	0.5 %
Asia	6,999	45.8 %
Europe	2,781	18.2 %
North Ameria	4,354	28.5 %
Oceania	873	5.7 %
South America	212	1.4 %
Totals	15,288	100.0 %



Contacts by Continent

In the contacts by band stakes, probably the couple of disappointments were that we didn't spend more time on 80 m, 30 m and 17 m. It was a combination of factors that contributed to this, including antennas, workable band combinations that didn't interfere with each other and operator availability.

For a 4 man DXpedition to cover as many bands as we did, including 6 m EME, we are very pleased with the results achieved.

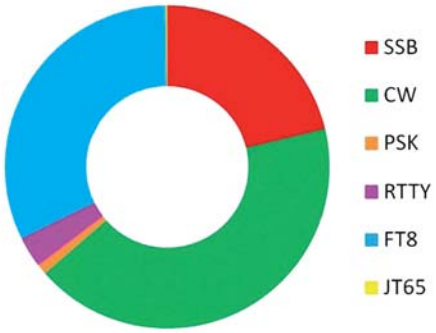


Contacts by Band

WHERE DID WE WORK?

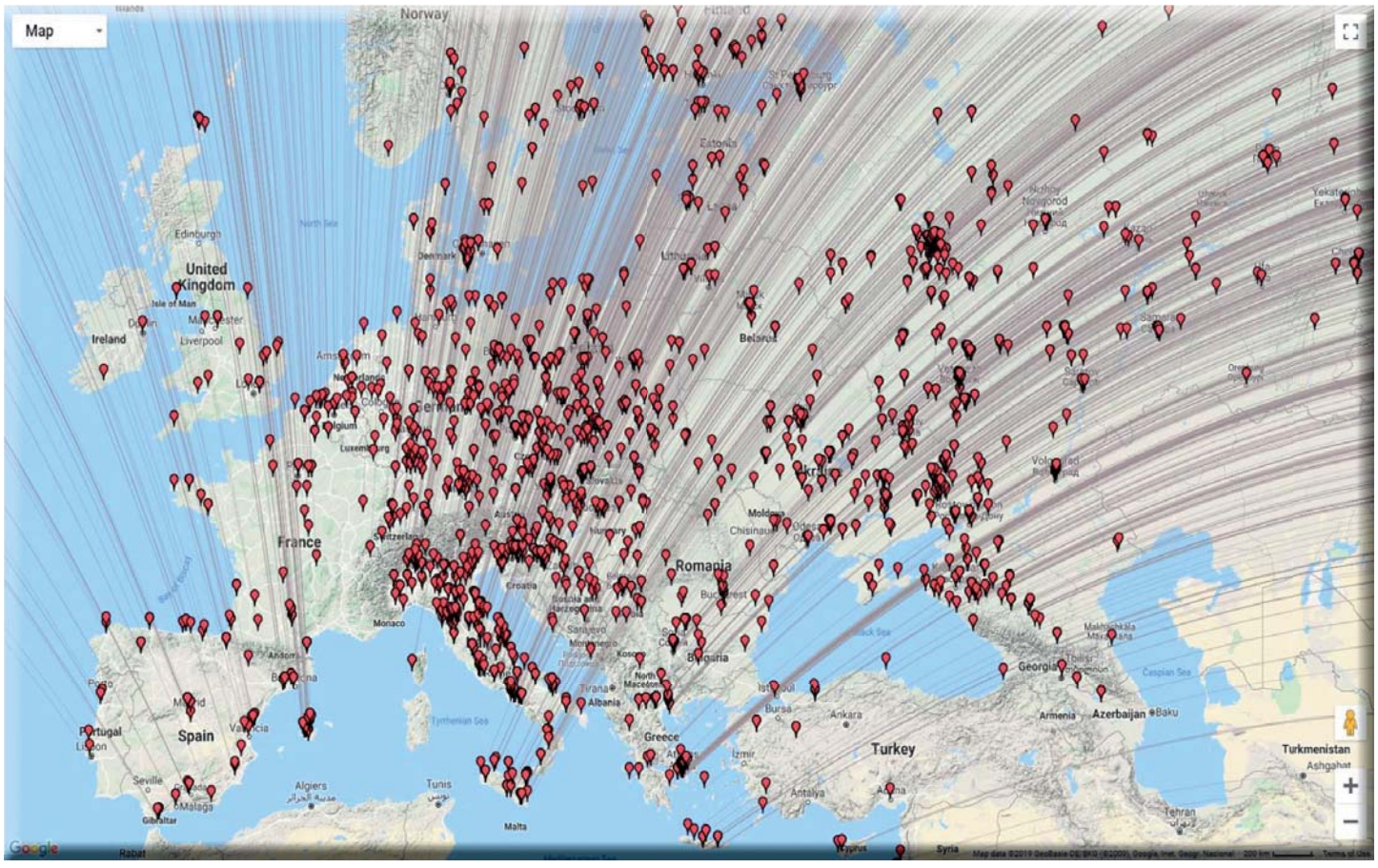
We also took a look at the maps of where we made contacts.

The map of Europe tells the tale with the number of contacts into western Europe visibly less once you cross the path that traversed the north pole. While we did manage contacts into France, the UK and Spain, there were far fewer than countries east of that line. You can take heart that it wasn't for lack of trying. Clearly it was just hard at this point of the solar cycle.

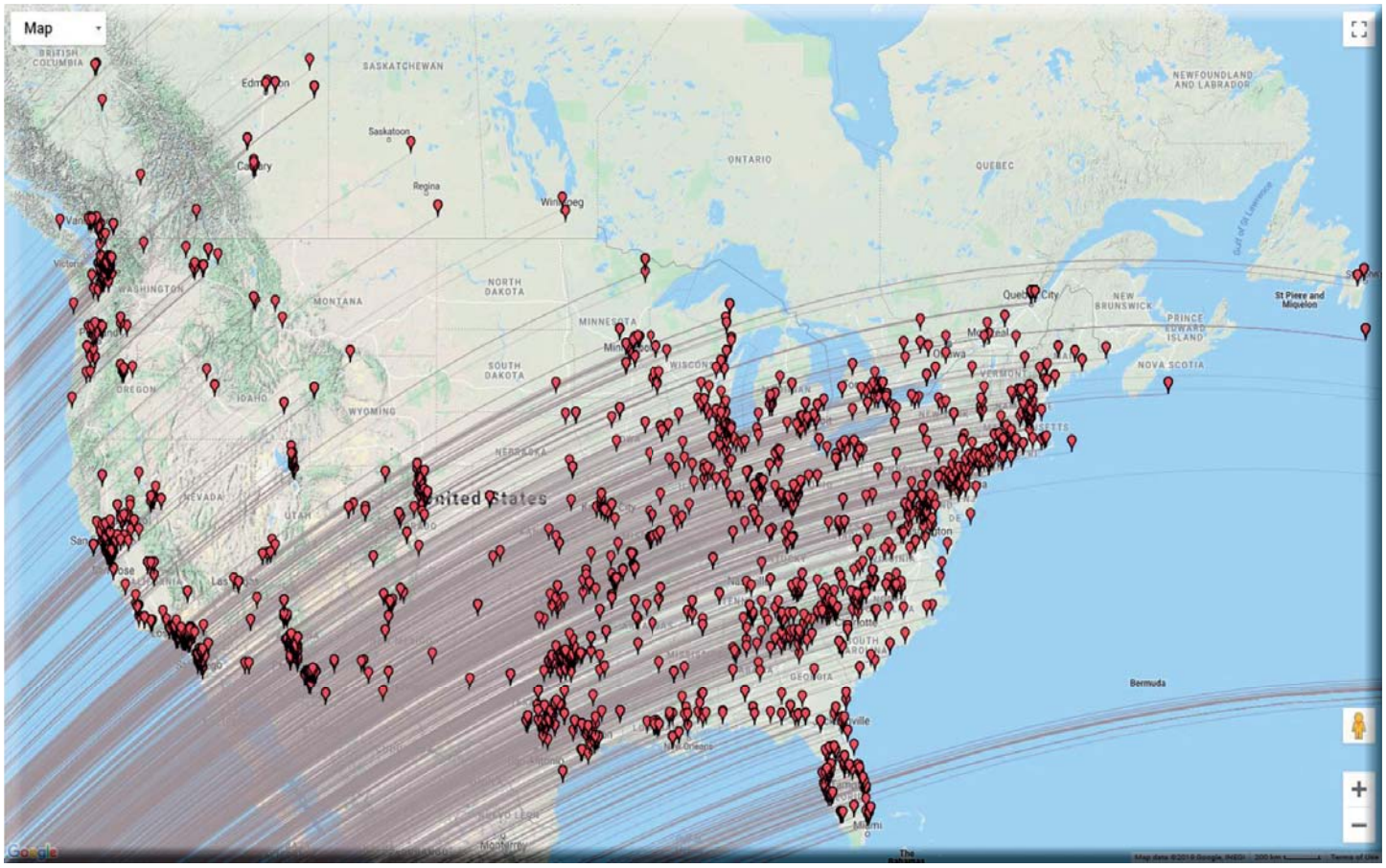


Contacts by Mode

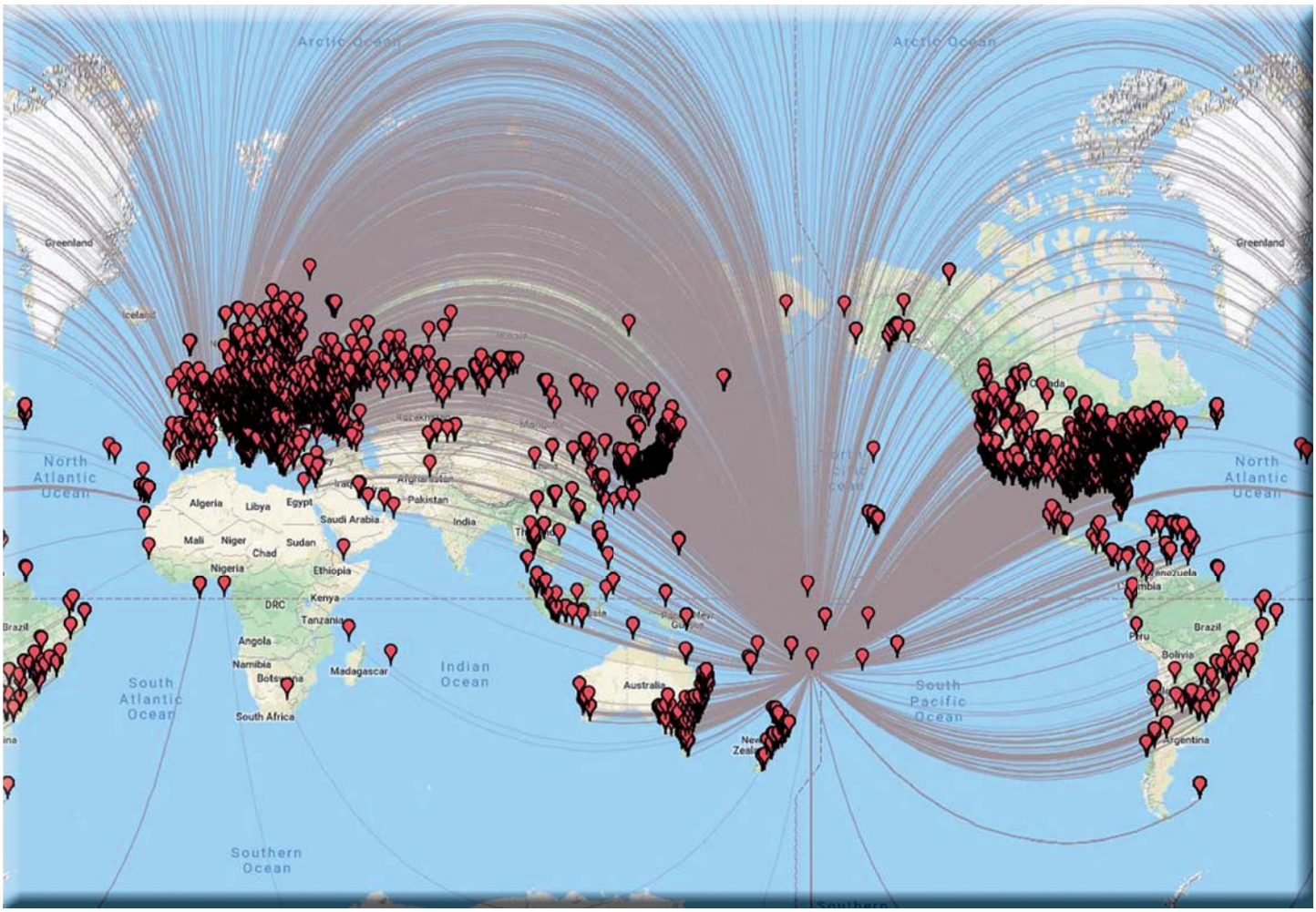
Looking at the North American map we can see good coverage over the populous states even into the far North East while the global map shows a good quantity of South America was reached as well.



European Stations Worked (map thanks to adventureradio.de)



North American Stations Worked (map thanks to adventureradio.de)



Global Stations Worked (map thanks to adventureradio.de)

CONCLUSION

Now with everyone and everything safely back in Australia we sit back and look at what was achieved. As a first time DXpedition group we are happy that we delivered what we promised to all of our sponsors, supporters and to the Amateur Radio community in general. Without everyone's support, particularly the financial support received, this would have been far more difficult to achieve. To all of the individual contributors we say a huge thank you for your faith and believe in us.

Special mention must also be made of the 6 m EME community who put their faith in a scratch team of novice EME operators to deliver their QSOs from Tonga. Your support meant a lot and went a very long way to making the EME part of the activation even possible. To Lance, W7GJ, Peter VK5PJ, Matt VK5ZM, Dennis VK5DEN and Bjorn SM7SJR in particular a huge thank you!

DX ASSOCIATIONS

We must also say a special thank you to all of the organizations that supported this DXpedition. Without your contributions, we would not have been able to take the station that we did out into the South Pacific. To all of you we say thank you!

And others DX Association Sponsors

THANKS TO OUR OFF ISLAND SUPPORT TEAM

We also want to thank our off island support teams. In particular our QSL Manager, Charles MØOXO who has the thankless task of processing the thousands of QSL requests our contacts will generate. We can't recommend Charles highly enough if you are in need of a QSL manager.

Charles MØOXO – Our QSL Manager

We also want to thank our pilot team around the world. The communications, camaraderie and support you provided was highly valued by the team. Special thanks to Bjorn ON9CFG who took on the role of Europe and Chief Pilot, Steve N2AJ who represented North America, Joe JJ3PRT who represented Japan and provided our Japanese webpage, Chris VK5SA who represented Oceania, Ricardo PY2PT who represented South America and Jim AC9EZ who was our ATNO and Youth pilot.

We also want to pass on our regards to Cesar PY2EG who was originally going to be our South American pilot but who had to pull out at the last minute.

THANKS CLUBLOG!

Another huge aspect of bringing a DXpedition to life is the online presence created for the DXpedition. Michael G7VJR at Clublog has created a tool of immense value to the Amateur Radio Community, one which we used extensively in bringing you A35JT. The live logging added a truly special dimension to the DXpedition.

We would encourage all amateurs to consider making a yearly donation to Michael and the Clublog team to support their work bringing Clublog to the Amateur Radio Community!

TECHNICAL SUPPORT

We must also thank a number of amateurs back in Australia who helped particularly through the development phase of the project. To Matt VK5ZM, Neil VK5KA, Paul VK5SL and Dennis VK5DEN, thanks for each of your contributions to the project.

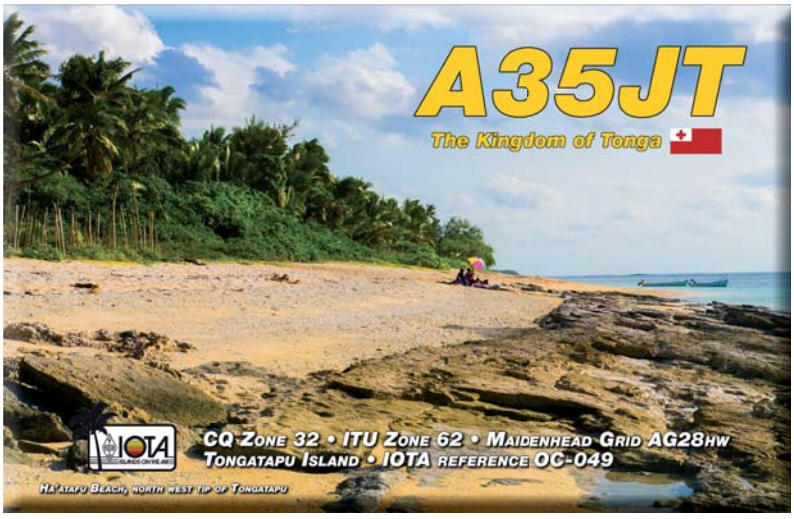
Special thanks to Matt VK5ZM who also helped with Web Hosting support services and servers for our website and his expertise with yacht rigging in the design of the low band antenna system!

A35JT Pilot Team

END OF THE JOURNEY

So that brings us to the very end. We hope you have enjoyed working us from Tonga and following along our story. Hopefully we will be able to head out into the Pacific and bring you another one in the future. Look out for us calling CQ perhaps in 2022!

73 de Grant VK5GR – Team Leader for A35JT Tonga



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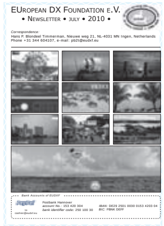
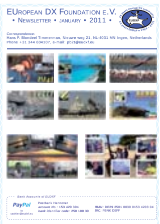












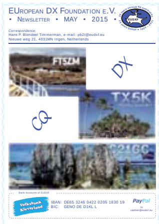




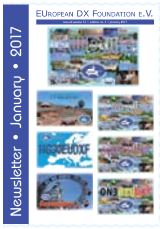








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Data Protection Declaration
(Members)

Section 1

By joining of a member, the association records the name, first name, date of birth (optional), home address and e-mail address of the member. This information is stored in the computer systems of the executive committee. Each club member is assigned a membership number. The personal data are protected by appropriate technical and organizational measures against the knowledge of third parties. Other information about the members and information about non-members are only processed or used by the association if they are useful for the promotion of the purpose of the association and there are no indications that the data subject has a legitimate interest, which precludes the processing or use.

Section 2

The board announces special events of the association life, in particular the execution of events in the club magazine and/or on the club's own internet pages. Personal member data can be published at this juncture. The individual member may at any time object to the publication of such data by the board. In this case, there will be no further publication in relation to this member on the notice board and/or in the club magazine and/or the club's own websites.

Section 3

Only board members and other members who perform a special function in the association, which requires the knowledge of certain member data, receive a list of members with the required membership data.

Section 4

The association informs the amateur radio related media about special events. Such information is also published on the website of the association. The individual member may at any time object to the publication of his personal data or revoke his consent to publication on the Internet. In the case of an objection or revocation, further publications regarding his person are omitted. Personal data of the withdrawing member will be removed from the homepage of the association.

Section 5

Upon resignation, the data of the member named under section 1 will be deleted from the member list. Personal data of the withdrawing member concerning the cash management will be kept for up to ten years from the written confirmation of departure by the Board in accordance with the tax regulations.

EUROPEAN DX FOUNDATION E.V.

MEMBERSHIP APPLICATION

☐ I herewith apply for membership in the European DX Foundation e. V. (EUDXF). The membership fee is **25,- € per 12 months and is due after 12 months in the following year.** Membership is automatically prolonged if it is not canceled in written format latest **6 weeks before the end of the year**.

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☐ I am already a member of EUDXF, but I would like to become a life member:
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Method of payment:

☐ I will pay the contribution to the bank account of EUDXF:

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IBAN: DE65 3246 0422 0205 1830 19
BIC: GENO DE D1KL L

☐ I will transfer the contribution via PayPal to cashier@eudxf.eu

I have read the privacy policy and herewith accept it.
I can revoke my consent at any time for the future.

Signature: _____ Date: _____

Please mail this application to:

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Robert F. Lörcks, DL1EBV
Sommerlandstraße 23
47551 BEDBURG-HAU
GERMANY

You can e-mail your application to:

eudxf@eudxf.eu

Or get into contact with EUDXF via internet: http://www.eudxf.eu

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