

E51SGC & A35GC DXpedition 2024

organized by Stan, LZ1GC

The E51SGC & A35GC DXpedition 2024 took place from November 7, 2024 to December 6, 2024. This expedition was accomplished by Stan, LZ1GC and Ted, LZ5QZ.

The E51SGC & A35GC DXpedition 2024 included activation of the amateur radio bands on islands in two Pacific countries - Rarotonga Island belonging to the Southern Cook Islands (E51/S) and activation of Tongatapu Island, Kingdom of Tonga (A35). The two activities took place as follows

- 1. E51SGC - from November, 7 - November 24, 2024.**
- 2. A35GC - from November, 25 - December 6, 2024.**

For the readers of this article, I provide brief information about the islands and the countries to which they belong.

Rarotonga Island, belonging to the Southern Cook Islands:



Rarotonga Island is the largest island in the southern group of the Cook Islands. It is located in the South Pacific Ocean, about 3,400 km northeast of New Zealand.

The island is of volcanic origin, surrounded by a coral reef and has a unique mountain range surrounded by a plain. The highest point is Te Manga with an altitude of 652 meters above sea level.

The population of Rarotonga is about 10,000, the majority of whom are Protestant Christians. Catholicism, Pentecostalism, Jehovah's Witnesses, and Mormons have a presence in the Cook Islands.

The capital of the Cook Islands - Avarua is located on Rarotonga Island where are the airport, which receives international flights, mainly from New Zealand and Fiji. Avarua is the seat of the administration of this country. The Cook Islands are parliamentary self-governing, voluntarily joined New Zealand. All residents of the Cook Islands also have New Zealand citizenship and many of them work in New Zealand.

The economy of the Cook Islands and especially on the island of Rarotonga is based on citrus fruits - pineapples, bananas, coconuts, mangoes. Light industry is developing. The main income for the Cook Islands is provided by well-developed tourism.



Kingdom of Tonga

The Kingdom of Tonga is an archipelago in the southwestern Pacific Ocean. It is located south of Samoa and east of Fiji and the Southern Cook Islands. Tonga is the only island country in the Pacific Ocean with an intact monarchy. It consists of three island groups – Tongatapu (main island), including 73 islands in its group, the Ha'apai island group (62 islands) and the Vava'u island group (34 islands). The population of the Kingdom of Tonga is about 120,000, with about 70,000 inhabiting the main island of Tongatapu and concentrated mainly around the capital Nuku'alofa - the administrative center of the Kingdom of Tonga. The population is mainly Tongan (98%), Polynesian - about 1%. Europeans on the island are about 0.5%. The population of Tonga is mainly Christian - Protestant (86%) and Catholic (14%). Tonga is a poor agricultural country and its main income comes from the export of citrus fruits and agricultural products; there is no developed industry. This Pacific country has poorly developed infrastructure and tourism!

The preparation of the E51SGC & A35GC DXpedition 2024 took me about 4 months – during which time, I was doing something every day for the implementation of this expedition. During this period, I had to research a lot about the countries that we were going to activate on the amateur radio bands, we had to obtain an E51SGC license, to provide accommodation that was suitable for amateur radio activities, provide and test the technical and antenna equipment, purchase the tickets for the expedition, secure the expedition with sponsors and many other things!

The first thing I did was to specify the travel route for the realization of both activities. Based on my long-term experience in organizing DX expeditions – I did this quickly.

Together with Ted, LZ5QZ we decided to travel to Sydney, Australia and from there to the island of Rarotonga, from the Southern Cook Islands group.

After the end of the E51SGC activity, we planned to travel to the island of Tongatapu, Kingdom of Tonga the next day and reactivate (after 2022) Tonga, as A35GC.

The choice of Sydney, Australia was not accidental. In Sydney, Australia, we could count on the powerful logistical support of my friendly family – XYL Olga, LZ1QG & Nick, LZ1QP, living in Australia for more than 30 years!

For acquiring the E51SGC license, as well as for the accommodation on the island of Rarotonga, Janusz, SP9FIH, provided me with great help with information, for which I am very grateful. Thanks to the information provided by Janusz, SP9FIH, I was able to quickly contact with Mr. Katoa Banaba, responsible for amateur radio licenses in the Cook Islands, and apply for the E51SGC license. By sending all the necessary documents, our license was ready and we only had to get it upon our arrival on the island of Rarotonga!

About the accommodation – thanks to the information given to us by Janusz, SP9FIH – we booked a guesthouse located on the Ocean shore. Regarding the A35GC license and Tonga accommodation – things were also resolved quickly and without problems, as this would be our second Tonga activation – the first Tonga activation by me and Ivan, LZ1PM was in November 2022. My A35GC license is valid until 2027, so it did not need to be reissued.

The same applies to the accommodation – we used the same place we had used in 2022.

The hard part for us was – buying the plane tickets. The Southern Cook Islands and the Kingdom of Tonga are distant destinations, located more than 17,000 km from Bulgaria and Europe, and the tickets are expensive! In

addition, we had to prepay for the accommodation. This forced us to buy the tickets in parts, stage by stage for each of the distances, even some of the distances were divided into 2 parts. Anyway... in the end we managed!

The most difficult part of preparing for this expedition for me was packing the luggage, and it was not a small amount – three transceivers: FT DX 10 – 2 pieces, TS 480 SAT, two amplifiers: ACOM 1200S and ACOM 700S, power supplies for the transceivers 5 pieces, as well as many additional things to our technical and antenna equipment. Whatever I did, no matter how I arranged it – there was still not enough space for some things, and we also had to take into account weight limits of the hand and check-in baggage! Our total baggage was 120 kgs. In the end, we managed to do that too! Here I just want to mention that my laptop bag weighed only 13.5 kg!

In Australia, at the home of my friendly family, a luggage with masts and coaxial cable (with a total length of about 160 m) was waiting for us.



E51SGC Team departure

On October 30, 2024 at 15:00 with British Airways flight BA 0891, from Sofia to London, our journey to the Pacific Ocean began. We were sent to the airport by Victor, LZ1NY, who in the last 3 years has invariably sent us off with wishes for success on our long and difficult journeys to the Pacific Ocean. After a 3-hour flight, our plane landed successfully at Heathrow Airport, London. Our next flight was BA 0015 from Heathrow – Sydney, Australia with an intermediate landing to refuel the plane at Changi Airport, Singapore - so in practice after two consecutive flights of 14 hours and 9 hours, we arrived at Sydney International Airport, Australia at 06:55, on November 01, 2024.

The journey was really long and hard – starting from Sofia, Bulgaria, we spent more than 26 hours in the air thousands of kilometers high!

In Sydney, Australia we stayed for 5 days at the home of our friendly family – XYL Olga & Nick Zaharievi. We used our stay in Sydney not only to a rest from the long journey to Australia, but also to repack some of our luggage, due to the difference in baggage limits of British Airways and Air New Zealand.

Our travel to Rarotonga Island continued on November 6, 2024. After 2 flights with Air New Zealand: Sydney, Australia – Auckland, New Zealand and Auckland, New Zealand – Rarotonga, South Cook, on November, 6 (it is November, 7 in Europe) we arrived at Rarotonga Airport.



E51SGC Team

Leaving the airport we were greeted by Jim, E51JD – one of the few local radio amateurs. I contacted Jim, E51JD (Papa Jim) via e-mail when we were preparing this expedition, before our departure from Bulgaria. Jim is 87 years old, in very good health. He is the former Finance Minister of South Cook. An incredible person!!!

Our plans after arriving in Rarotonga were – first to visit Mr. Katoa Banaba's office to get the E51SGC license, and then to check into the accommodation. Jim, E51JD explained to the taxi driver where he should take us and after about 15 minutes we were already talking with Mr. Banaba in front of his office. Having received the license, we continued by taxi to the guesthouse, which was located 3-4 km from the capital Avarua.



Stan, Jim E51JD and Ted

Arriving at the accommodation, which we had booked, we immediately started unpacking our baggage and we started installing 2 antennas - a Vertical for 14 MHz and a DX Commander antenna - for the 40 - 10 m bands.



E51SGC Multi band GP and INV Vee

After these antennas were installed, we started unpacking and installing the technical equipment. We equipped 2 workstations with FT DX 10 transceivers, each of them equipped with a linear amplifier - one with an ACOM 1200S, and the other with an ACOM 700S.

In the meantime, it was already dark outside - about 19:30 local time.

Ted and I were very tired from the trip and everything we had done since arriving on the island of Rarotonga. We decided that Ted, LZ5QZ should take a few hours off and sleep, and I started working on the air – on 20 meters (14010 kHz). E51SGC went on the Air at 07:45 GMT on November 7, 2024. The first radio contact was with ZL4TE, after which there was a big Pile Up!

I was very tired and at times my eyes were closing from the need for sleep, but during the big Pile up the thought of stopping never crossed my mind!

The QSOs rate was 3 - 4 contacts per minute. It could have been better, but fatigue was telling!!!

After 5 hours of work on 20 m, CW and conducted about 800 radio contacts, I decided to wake up Ted so that he could replace me and he to continue working on SSB, and I take 2-3 hours of sleep.

After 3 hours, at dawn, around 6:00 AM local time, we activated E51SGC on 15 m, FT8, and we both – Ted, LZ5QZ and me started preparing the installation of our main antenna – Multi Band GP for 40 - 10 m + WARC bands.

After installing the Multi band GP antenna, we also lifted 2 combined INV.VEE antennas – for 80m and 60m bands, fed by a single coaxial cable and placed on top of a 12m Spiderbeam Fiberglass mast. Immediately after installing of these antennas, we activated 17m, CW with a rate of up to 4-5 contacts per minute!



E51SGC 60 & 80 m antenna

Our accommodation was in a nice location - on the Ocean beach, but unfortunately the space for antennas was no more than 500 sq. meters.

To work with 2-3 workstations, we needed more antennas and more space for their placement!



Second working place E51SGC

Fortunately, we solved this problem, albeit partially, after allowed us to use part of the yard (about 300 sq. m) of the neighboring property to install there our antenna for 160 & 80 m - vertical with capacitive hat, using an 18 m Spiderbeam Fiberglass mast.

A problem during our activity from Rarotonga Island, South Cook Islands was that due to the limited space and the proximity of our antennas to each other, we were not always able to work simultaneously on CW & SSB, using 2 workstations.



Stan & E51SGC 160 & 80 m antenna

From 07:45 GMT on 7 November 2024 to 06:03 GMT on 24 November 2024, E51SGC was continuously on the air, on different bands and different modes – CW, SSB, FT4, FT8 and RTTY.

Our activity was on all bands from 160 – 6 m with special attention to the 160, 80 and 60 meter bands, where our result, I think, is very good.



Stan, E51SGC QRV on CW

For 17 days, E51SGC with two operators – Stan, LZ1GC and Ted, LZ5QZ made 48,138 contacts with 157 countries, on all amateur radio bands (160 – 6 m). During the E51SGC activity, the propagation on the bands was not the best. There was a long period with strong Aurora and during these days, propagation was not only unpredictable, but also very strange!

I am attaching statistics from Club Log, about the work and contacts of E51SGC by bands, modes of work and quantity:

Band/Mode breakdown

Band	CW	FT8	FT4	SSB	RTTY	Total	Total %
160	16	667	0	0	0	683	1.4%
80	537	2492	14	0	0	3043	6.3%
60	3	1109	0	0	0	1112	2.3%
40	1131	2180	348	326	64	4049	8.4%
30	1455	3395	632	0	109	5591	11.6%
20	2038	2521	1233	1678	181	7651	15.9%
17	1079	2859	351	925	230	5444	11.3%
15	1097	4697	1006	1171	268	8239	17.1%
12	1014	2950	1010	733	74	5781	12.0%
10	1210	2925	1089	1202	95	6521	13.5%
6	0	24	0	0	0	24	0.0%
Totals	9580	25819	5683	6035	1021	48138	

We are impressed by our visit to Rarotonga Island, South Cook. The local people are very friendly and kindly there!

Despite our commitment to our activity on the air as E51SGC, we managed to take some time (only a few hours) to look at various sites in the capital Avarua, we also visited the local harbor and many places in the center of Avarua – the capital of South Cook Islands

At the beginning of this article, I mentioned that the island has a volcanic character.

The core of the island consists of densely forested hills cut by deep valleys, the eroded remnants of the original volcanic cone. The hills are drained by a number of radial streams, including the Avatiu and Takuvaine Stream. Te Manga, at 658 m (2,140 ft) above sea level, is the highest peak on the island. Ikurangi, a smaller peak, overlooks the capital.

Access to these peaks is via protected eco-trails. Climbing these peaks is one of the island's attractions! Ted, LZ5QZ managed to make a 5 - 6 hour hike in this mountain range crossing the island.

Rarotonga Island has a perfectly developed infrastructure and is a destination visited by hundreds of thousands of tourists!

We are very grateful for the frequent visits from Jim, E51JD - Papa Jim !!! His visits and discussions with him brought variety to our otherwise monotonous daily life!

On November 24, 2024, at 06:03 GMT E51SGC ended its activity by went to QRT.



E51SGC & A35GC team with GDXF flag

The same day we were to depart from Rarotonga Island, South Cook and travel to the Kingdom of Tonga, from where we planned to be active on the air from November 25, 2025.

On November 24, 2024, at 02:15 AM (local time) with flight NZ 0947 of Air New Zealand we departed from Rarotonga Island, South Cook Islands to Auckland, New Zealand, from where our next flight was to Nuku'alofa, Kingdom of Tonga.

On November 25, 2024 at 11:45 local time, Air New Zealand Boeing 737 operating flight NZ 970 from Auckland, New Zealand to Nuku'alofa, Kingdom of Tonga, with Stan, LZ1GC and Ted, LZ5QZ on the board, landed successfully at Nuku'alofa Airport on the island of Tongatapu, Kingdom of Tonga.



I would like to remind the readers of this article that in 2022, I had already activated Tonga on the amateur radio bands, from 160m – 6m, including WARC & 60m bands.

In 2022, the A35GC activity was by 2 operators – Stan, LZ1GC and Ivan, LZ1PM. Then our activity was 17 days and ended with 43,387 radio contacts, on all amateur radio bands (160m – 6m), on CW, SSB & FT8.

Now, with this second activation I wanted to give another chance to those who needed A35, as a new country or a new band slot. My idea was, we to activate also RTTY & FT4, which were not activated in 2022!

Due to the fact that A35GC 2024 is Tonga's second activity within 2 years, with the same callsign (A35GC) and due to the fact that the activity took place from the same location as in 2022, in order not to burden the readers of this article, I will inform about this activity in this article briefly and mainly with data on how our A35GC activity in 2024 went.

After arriving at the airport in Nuku'alofa, Kingdom of Tonga, we quickly passed passport control and, leaving the airport by taxi, immediately headed to the accommodation we had booked.

Arriving at the accommodation, we were greeted by the owner, Mrs. Rubina. She invited us to lunch, but we politely declined, explaining that we had to install some of our antennas and be on the air before dark.



A35GC Team on Arrive

We were very tired from the travel and the 17 days of activity from Rarotonga, South Cook Islands, but by nightfall we had installed the vertical for 20 meters and immediately A35GC appeared on the air on 14 MHz, FT8. The first contact was with K6OW at 05:51 GMT on November 25, 2024. Immediately after that, Ted and me set about installing the DX Commander antenna - for the 40 - 6 meter bands. When the DX Commander was ready, we installed the equipment for the second working station and A35GC appeared on the air on 15 meters, FT8.

Very fast after our arrive on Tonga, A35GC was active with 2 working places - on 20 & 15 m bands on FT8.

Because, we were very tired, we decided to give ourselves a few hours of sleep, and on the next day we had to installing the 160 & 80 m antenna, the 60 m antenna, as well as our main Multi Band GP antenna - from 40 - 10 m + WARC bands.



A35GC Multi band GP Prism Antenna

Waking up after about 3 hours, I immediately activated the A35GC on 28 MHz, CW. The propagation was mainly for Eastern and Southern Europe. The pile up was good – about 3 contacts per minute. After about 2 hours of activity on the air on CW, on 28 MHz, we switched to 20 meters, SSB.

We found, however, that there was a lot of local noise on the bands. The noise, which reached S9, made it difficult for us to work on the air on CW & SSB. We could not determine the source of the noise!

We used all the filters on our equipment, but we couldn't completely eliminate the noise. It was extremely difficult, really!

On November 26, 2024, the second day of our activity from the Kingdom of Tonga, we installed the rest of our antennas.



A35GC DX Commander antenna

From 05:10 GMT on 25 November 2024 to 6 December 2024 (for 11 days) - A35GC with operators Stan, LZ1GC and Ted, LZ5QZ made 30,500 radio contacts, on all amateur bands, on CW, SSB, RTTY, FT8 and FT4.

During the A35GC activity, in addition to the loud noise, we also had problems with the mains voltage, which at times reached 250 volts.

Although this was the second activation of the A35GC, the interest in this activity was very high.

During all these 11 days of our activity from Tonga, we were constantly on the air, in most cases with 2 working places.

I am attaching statistics on the activity of A35GC with the clarification that it includes the 2022 + 2024 activities!

Band/Mode breakdown

Band	CW	FT8	SSB	FT4	RTTY	Total	Total %
160	34	238	0	0	0	272	0.4%
80	457	2488	0	0	0	2945	4.0%
60	3	720	0	0	0	723	1.0%
40	3128	4176	299	333	0	7936	10.7%
30	2322	4280	0	1126	1	7729	10.5%
20	2359	5907	1776	1480	9	11531	15.6%
17	2912	4669	772	613	61	9027	12.2%
15	2220	8080	1258	893	71	12522	16.9%
12	2744	5360	1150	689	40	9983	13.5%
10	3438	5026	1329	1123	52	10968	14.8%
6	0	300	0	0	0	300	0.4%
Totals	19617	41244	6584	6257	234	73936	

On 6 December 2024 at 13:16 GMT (01:16 local time on 7 December), A35GC went QRT, after which we spent the whole night dismantling antennas and preparing our luggage for departure.

On 7 December 2024 at 1:05 PM local time, we departed the Kingdom of Tonga with Air New Zealand, flight NZ 971 and headed to Auckland, New Zealand and Sydney, Australia on our way back to Europe and Bulgaria.

On 10 December 2024 at 7:30 PM, finally we arrived into Bulgaria on flight BA 0890 of British Airways, after a 40-days travel and radio activity in the Pacific Ocean.

At the end of this article we would like to express our gratitude to all our individual sponsors who supported us before and during our two Pacific Ocean activities.

We would like to thank for the support of: Chiltren DX Club (U.K.), German DX Foundation, Clipperton DX Club, Swiss DX Foundation, GM DX Group, Europe DX Foundation and Jake McClain Driver Memorial Amateur Radio Club (KC5WXA) !

73! Stan, LZ1GC & Ted, LZ5QZ