



SUSTAINABLE AMATEUR RADIO IN PARADISE: ROTUMA ISLAND “GREEN” STATION PROJECT 2012

By Dr. Antoine D. R. N'Yeurt, 3D2AG

Email: nyeurt@yahoo.com

About Rotuma Island

The island of **Rotuma** is historically a part of the Fiji Islands, having been ceded to Britain in 1881. However, it is 400 miles North of Fiji (located at 12'30S and 177'E) and its relative isolation resulted in a population and culture distinctly different from any other Pacific island. It is 9 miles long and 3 miles wide, and has a population of about 3000. My own experience with Rotuma began in July 1991, when I spent one month on the island using the Radio Amateur callsign **3D2AG /p**. Since then, I returned almost every year to FAPUFA village staying with the AISAKE family, with the latest visit with my family from the 10th of December 2011 to the 13th of January 2012.

About Amateur Radio



Typical Amateur Radio equipment

Radio-Amateurism is a hobby whereby one may contact any other radio-amateur in the world using even a simple shortwave radio transmitter, car battery and wire antenna, bypassing the internet, phone networks and other means of communication. Needless to say, it is of very high importance in times of natural disasters such as cyclones and earthquakes, and radio-amateurs are an integral part

of the Disaster Risk Management plans of many countries with a large population of radio enthusiasts, such as Japan during the Great Tohoku Earthquake and Tsunami in March 2011, and the Haïti earthquake. In Fiji at present, there are less than 5 active local radio amateurs. The requirements to obtain a radio-amateur license in Fiji are the City and Guilds of London Radio Amateur Examination (basic principles of electronics, radio propagation and regulations) and knowledge of the Morse code at a minimum speed of 12 words a minute (although the latter requirement is progressively being phased out).

A “green” radio station to benefit communities



Radio hut with VHF antenna and solar panel in the foreground

In this age of Climate Change and emphasis on sustainable development of the capacity of isolated Pacific island communities to be mainstreamed in their awareness of natural disaster response, as well as having access to early warning systems for extreme events such as tsunamis and cyclones, amateur-radio can provide an elegant and ‘green’ solution to the communication

barrier. Using renewable energy from the sun, relatively simple transmitters and antennas and with a minimum of basic training, even the most remote communities can keep in touch with disaster management nodes and other Government agencies, as well as with other radio-amateurs worldwide in case of natural disasters or medical emergencies.

In this context, we proposed to setup again a demonstration solar-powered radio amateur station



The deployed KYOCERA 135SX solar panel

in Rotuma during the months of December 2011 and January 2012, to coincide with the launch of the **International Year of Sustainable Energy For All 2012**.

The station was entirely run on **renewable energy** solar panels and batteries sponsored by the **TOTAL** oil company, with special commemorative cards (QSL-cards) being printed on



The SPIDERBEAM antenna and main house

recycled paper to confirm the contacts with Rotuma with amateur radio operators worldwide.

The "radio station" consisted of a palm-frond hut, with provisions for a bed and operating table inside. The antenna system consisted of a SPIDERBEAM Directional beam, a VHF beam and wire antennas. The radio equipment consisted of the ICOM 706MKII and KENWOOD TS-440S transceivers. Power was supplied by a KYOCERA KD-135SX solar panel and

TROJAN T1275 deep cycle battery coupled to a MORNINGSTAR SS20L charge controller, with lighting supplied by a SUNDAYA ULUX-9 CFL lamp. **TOTAL** kindly sponsored all the power and lighting requirements for this operation. With this simple setup, almost 7000 contacts with over 200 different countries were made, including some historic first-ever VHF contacts between Rotuma and Western Australia. About 90% of contacts were made using Morse code (CW mode), with the remainder 10% using voice (SSB mode). Most of the correspondents were from Europe and the USA, with the remainder from Japan, Asia, South America, Australia and New Zealand. All these fellow radio-amateurs were thrilled to make the rare contacts with Rotuma Island and



Dr. Antoine N'Yeurt (3D2AG/p) at the amateur station

are looking forward to their verification (QSL) cards.

Rural Electrification Project for Fapufa Village



Mr. Pita Aisake in his newly-lighted living room

Upon completion of the amateur-radio project in early January 2012, the solar panel, controller, battery and lights were **transferred to the main house of the AISAKE family in Fapufa village**, where all wiring and switching (again generously supplied by **TOTAL**) had been installed by myself and Pita Aisake. Each of the six rooms in the house (including the kitchen and back porch) were supplied with a SUNDAYA ULUX-18 CFL lamp and switch. With this setup, the Aisake family had to simply turn on a switch to enjoy bright lighting just like in mainland Fiji, using entirely renewable, free solar

energy. This will make a big difference to their lifestyle, allowing them to read, work and have social functions at their house well past sunset, when all such activities normally ceased before. They will also be able to recharge their mobile phones and torches using this solar setup. Pita and Faga Aisake wish to convey their most sincere gratitude to TOTAL for this kind gesture towards providing solar lighting for their home, and look forward to TOTAL being further involved in renewable energy activities in the community of Fapufa Village in the future.



Solar lamps were installed in each room



The solar panel was installed on the roof of the main house



Mr. Pita Aisake and Dr. Antoine N'Yeurt in front of the controller and fuse box