Emergency Ham Radio Operations in the Andaman and Nicobar Islands following the 2004 Tsunami

Maureen Guzman

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Rice University

Physics of Ham Radio

On December 26, 2004 a massive tsunami hit Southeastern Asia, the Indian sub-continent and eastern Africa. The tsunami was triggered by a momentous earthquake which measured 9.0 on the Richter scale, the largest earthquake recorded worldwide in 40 years, according to the U.S. Geological Survey. The earthquake took place along a 1,200 kilometer fault line in the subduction zone in which the India Plate is being subducted beneath the Burma Plate. In the first minutes after the initial quake, the tsunami separated into eastward and westward directions. The eastern tsunami impacted Sumatra with waves of 25 meters. The westerly wave generated by the earthquake, about one meter high, crossed the Bay of Bengal at about 800 kilometers per hour. As the tsunami wave reached land, it attained the height of about 14 meters at Sri Lanka. Some coastal areas received three or more tsunami impacts. According to the U.S. Geological Survey, the tsunami generated by the Sumatra earthquake was the deadliest in history with a death toll greater than 200,000 people.

Early in December, 2004 a team of Indian ham radio operators obtained special permission from the Indian Government to hold a DXpedition on the Andaman and Nicobar Islands, a remote archipelago of 500 islands located 900 miles east of the Indian mainland. Ham radio activity had not been permitted by the Indian government on the islands for the past 17 years due to the sensitivity of the area. Bharathi Prasad(VU2RBI), the DXpedition team leader, set up the ham radio station in Port Blair, Andaman Islands.

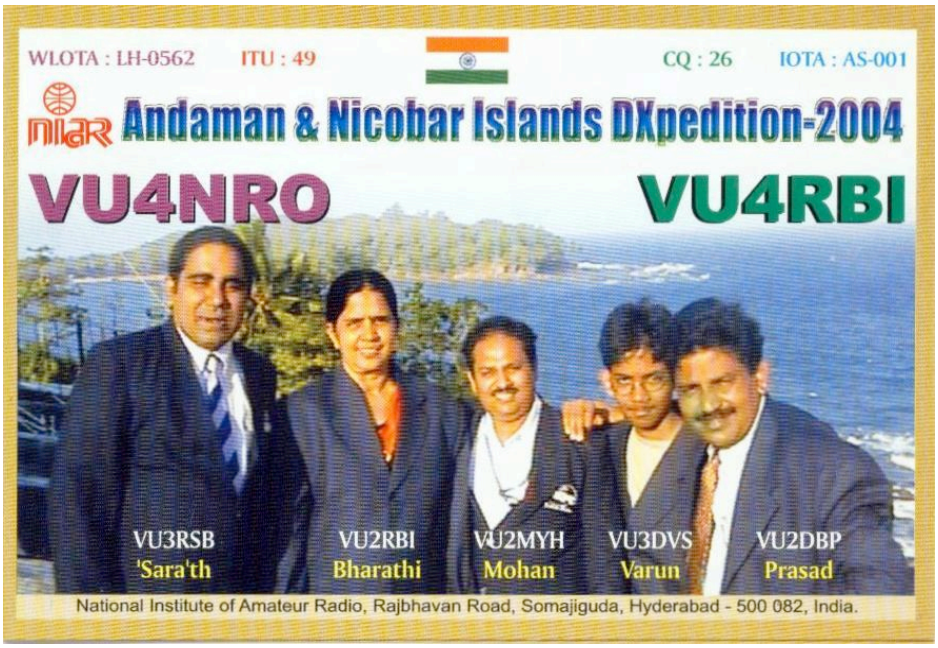
According to the Washington Post article by Rama Lakshmi, Mrs. Prasad was already making contacts on December 26, 2004, when she felt the first tremor. She was only able to shout “Tremors!” into the microphone before the power went out. From that point on, the DXpedition became an emergency communication center on the hotel lawn

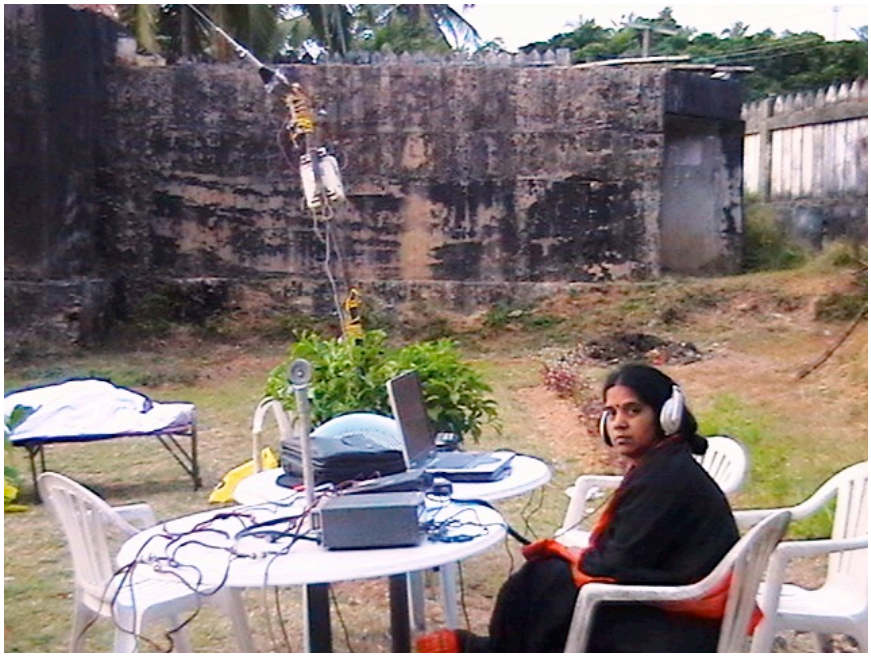
using a Yagi antenna and power from the hotel's emergency generator. According the Lakshmi, "Prasad's ham call sign, VU2RBI, was the only link for thousands of Indians who were worried about their friends and families in the islands." Mrs. Prasad broadcasted the fate of the islands over and over: no power, no water, no phone lines. Since the government ban had been in effect for 17 years, many government officials were unfamiliar with amateur radio, but were convinced of its value through Mrs. Prasad's emergency communication service.

Another member of the DXpedition, S. Ram Mohan (VU2MYH) established a radio station on Car Nicobar Island, one of the most affected areas. According to ARRL, "Asian Radio Amateurs Bridging Communication Gap following Tsunami", the signal from Mohan's transmissions were weak. He changed frequencies and resorted to Morse Code as needed. That station (VU4MYH) was the first amateur radio operation from Car Nicobar Island, and provided the only communications to the outside world for days.

In fact, what began as a short-term ham radio special event, demonstrated the enormous importance of ham radio in emergency situations. Telecommunications equipment was damaged or washed away by the tsunami. The satellite uplink antenna lost its alignment. The only communication that could function was amateur radio. The ham radio team provided communication among officials, communication between the islands, and coordination of relief efforts. Mrs. Prasad is called the "Teresa of the Bay of Bengal", for her relief efforts. The American Society of Civil Engineers in its preliminary report of the Andaman and Nicobar Islands recommends that the central Indian government authorize ham radio from the Andaman Islands. In addition, they recommend the installation of a transceiver repeater at a high location on South Andaman

Island with back-up battery power which would be linked with Echolink, so that communication would be maintained in case of an earthquake. Amateur radio proved its value in the Andaman and Nicobar Islands.





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