

# Tsunami!

## Hams Provide Critical Links in Massive Disaster

**A**t the equivalent of the snap of a finger, a massive 9.0 earthquake erupted under the Indian Ocean near Sumatra and triggered a tsunami that raced at speeds of up to 500 mph toward the coasts of Indonesia, Sri Lanka, India, and other nations, killing over 150,000 people and displacing millions more. It also triggered an international amateur radio response that was there to "Help All Mankind." This month we take a look at

the international amateur radio response and the important role amateur radio operators played at a moment's notice.

### DXpedition Turns into EmComm Central

The National Institute of Amateur Radio in Hyderabad, India sponsored a DXpedition to Port Blair, Andaman and Nicobar Islands for the month of December. The calls were VU4RBI and VU4NRO. Little did the operators know that this rare DXpedition to these picturesque islands in the Bay of Bengal between India and Thailand would become

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Over 150,000 people were killed by the earthquake-triggered tsunami. The earthquake measured 9.0 on the Richter scale. This is the fourth largest earthquake in the world since 1900 and the largest since the 1964 Prince William Sound, Alaska earthquake. (Map courtesy of the U. S. Geological Survey)



*Adam Steed, KE7EBX, hopes to be able to use Echolink to maintain contact back to the U.S. while he is in Sri Lanka. (Photo courtesy of Doug McKay, KD7LRJ)*

the center for emergency communications in one of the hardest hit areas of India. This was the first time amateur radio operations had taken place on Andaman and Nicobar Islands since 1987. Previous national security concerns of local officials were laid to rest as the hams proved to be good Samaritans.

Indian hams provided a national response with several teams traveling to the affected areas. VU2DVO and VU2JOS went to Port Blair. They reported that some landlines were working in Andaman, but there was no electricity or water at VU4NRO's location at the Hotel Sinclair in Port Blair. They also reported that one of the hardest hit areas, Car Nicobar, was totally cut off and thousands of people were missing. Ham radio operators were expected to travel to the area as soon as they received permission from the local authorities. Amateur radio communications were considered so important that stations were being set up at many government offices, including the Deputy Commissioner's office in Port Blair. According to government reports as of this writing, over half of the island's population is now living in refugee camps.

### The VU4 DXpedition

Bharathi Prasad, VU2RBI, was on the air talking to an Indonesian ham when the earthquake struck. "All of a sudden I felt tremors at around 6:29 AM. I realized it to be an earthquake and shouted 'tremors' into the microphone and rushed out of the room raising alarm alerting others." After checking that everyone was safe and that the antennas were still on the roof, Prasad got back on the air and contacted HS0ZAA in Thailand and VU2UU and VU2MYL on the Indian mainland. Both confirmed

the tremors at their locations. "I could guess the magnitude of the damage due to the earthquake and decided to suspend the DXpedition operations and started emergency communication with the mainland (VU) and other people from then onwards by turning the antenna beam to mainland."

At the hotel, Charlie Harpole, K4VUD, who was helping with the DXpedition, described what he felt during the earthquake: "Morning after Xmas, I was resting . . . and thinking about what to do that coming day when my bed started to quiver like a large train was coming by. Then the room started to rock about when I stood up. Walking and standing were difficult. Bottles were falling off the shelves, and my fifth floor room floor felt like rubber. I got braced within the bathroom doorway until things settled down. Then I found my pants and shirt and ran, shoes in hand, down the stairs and joined everyone else from the hotel in the open out front. Bharathi was already safely outside there. She was on the air at the time, but quickly figured out what was happening and got out."

Harpole continued, "By that afternoon, the team had set up one rig outside with a mobile whip and tuner . . . powered by the hotel generator . . . and Bharathi was taking health and welfare messages from the people standing around there. Many wanted to tell relatives on the Indian mainland that they were okay, and Bharathi established contact with many India ham stations in various cities as needed. Traffic was

being passed. She told my wife in Thailand that I was okay via contact with an HS station who passed the message by telephone in Thailand . . . very nice to be a ham!

"The team got cots from the hotel and, along with most others, slept out in the open that night. I slept fitfully near the lobby door on a couch inside, reasoning rightly this time that the worst was over. Even when the hotel generator had to be shut down for an hour from time to time, Bharathi used an automobile battery and lower power."

Prasad said that within a few hours they heard about the extent of damage in Port Blair. While the news of death and devastation caused by the tsunami/earthquake in other parts of India was quickly transmitted around the world, the situation in Andaman and Nicobar Islands was not known. Prasad said she "went on broadcasting information about the situation to anyone who could hear my signals. Simultaneously, I have sent my team members to the office of the Chief Secretary, Government of Andaman and Nicobar Islands expressing our willingness to extend our support for establishing emergency communication for the help of administration."

The Deputy Commissioner (DC) requested their services the next day. VU2RBI and VU3RSB established a radio station in the control room of the DC's office. At the request of the DC, two of the team members (VU2MYH and VU2DVO) proceeded to Car

### Disaster-Related Amateur Communications Between South Asia and the U.S.

*By Fred Maia, W5YI*

Amateur radio emergency communications—especially the passing of health and welfare messages—were under way at press time in the many South Asian countries affected by the massive December 26th earthquake and subsequent tsunami (tidal wave).

None of these countries, however, has a third-party traffic agreement with the U.S., and a question has been raised about the legality of disaster-related traffic between those countries and U.S. amateur stations.

The American Radio Relay League recently quoted an FCC staff member regarding third-party health and welfare traffic with amateur stations in the impacted area. The FCC pointed out that the international Radio Regulations were revised at the 2003 World Radiocommunication Conference (WRC-03) to provide that amateur stations may be used for transmitting international communications on behalf of third parties in case of emergencies or dis-

aster relief, even without a specific agreement between the countries involved, unless one of the countries objects.

The FCC staffer said: "An administration may determine the applicability of this provision to amateur stations under its jurisdiction. Although the FCC has not formally adopted the changes approved at WRC-03, the FCC has no objection to U.S. stations passing disaster-related traffic to and from stations in the affected areas if the administrations responsible for the Amateur Service in those countries do not object to their amateur stations receiving messages from our amateur stations on behalf of third parties." In addition, the Radio Amateurs of Canada (RAC) reports that Canada's regulatory agency, Industry Canada, issued a similar statement. Therefore, as long as there is no objection from any of the affected countries, it is legal for U.S. and Canadian hams to send and receive disaster-related third-party traffic to/from those countries.





*Pilot HS1HBJ used his airplane to survey damage in Thailand. (Photo courtesy of Phat, HS1WFK)*

Nicobar Island the next morning on a military aircraft and established communication between Port Blair and Nicobar. Hundreds of messages were passed each day between the mainland and the affected areas. One report said the number of messages reached 30,000. The only link for thousands of Indians and other country people who were worried about their friends and families on the islands was ham radio.

"Our station in the control room became the center of messages between Port Blair and Nicobar Island," said Prasad. "Survivors in Car Nicobar were communicating with their relatives in Port Blair through our stations. Other

hams of the country located on the mainland have helped us in relaying the messages whenever there was skip between our stations in the islands. When telephone lines were restored on Tuesday, the 28th of December, the information received on the radio about the survivors from Car Nicobar, that they were alive, was conveyed to their anxious relatives on the mainland. We also helped about 15 foreign tourists, including several from the U.S., to send news to their families."

VU2JOS, along with other government officials, was sent to Hudbay Island for relief activity. "The common man was totally happy in utilizing our service, and the magnitude of their satisfaction on receiving the information about the welfare of their kith and kin was beyond one's imagination," said Prasad. Tremors continued for the next six days.

As the strong aftershocks continued throughout the night, the station remained on the air passing traffic to the Indian mainland. While some telephone service was restored the next day, the DXpedition operators reported the local authorities were "quite hungry for information on casualties in the region, since they have only a trickle of news from the outside. It seems that amateur radio is showing its value during a severe crisis."

The efforts of the ham radio operators across India were very much appre-

ciated by the "Chief Secretary" of the Andamans.

## Technology Combined

During recent disasters we have seen the growing use of the internet combined with amateur radio. This disaster was no different. Sandeep, VU2MUE, said the "different technologies complemented each other."

A very long relief message for New Delhi was transmitted by Mohan, VU4/VU2MYH, in Car Nicobar on 30 December. VU2MUE could not copy the message because of poor propagation. The message was copied by Horey, VU2HFR, in Calcutta for relay to New Delhi. Instead of relaying the message on the air, VU2HFR in Calcutta typed it on his laptop computer and e-mailed it to Sandeep, VU2MUE, for further relay to the Director of Emergency Medical Relief Control Room in New Delhi. Confirmation that the message had been delivered was relayed back to the disaster area via amateur radio. Dr. Ravindran, Director of Emergency Medical Relief, thanked the ham radio volunteers for their support in handling government relief messages.

Many of the relief messages handled dealt with the daily number of deaths, missing, and injuries that each of us heard on the news. The Andamans accounted for about a third of India's reported death toll of 11,330. Thousands more were reported missing or have been separated from families in the archipelago's 572 islands because of massive damage to harbors, bridges, and local ferry services. When Bharathi, VU2RBI, returned from the Andaman Islands, Gopal, VU2GMN, said she was very, very tired (not unexpectedly) but happy that she and her team were able to assist in a time of need. According to newspaper accounts, an Indonesian ham radio operator told her, "Bharathi, we are now on air. You take care. You are the Angel of the Seas. Without you out there, rescue will halt."

## Military Tunes in Ham Disaster Nets

As relief aid headed for the area, reports surfaced of both Canadian and U.S. naval vessels tuning in on local amateur radio emergency nets in the Andaman Islands and Sri Lanka.

## A Call for Help

Sarath, 4S7SW, a physician operating near a hospital in Mathara, Sri Lanka, which was severely damaged by the



*The tsunami left a path of death and destruction up to 4 miles from the coast. (Photo courtesy of KD7LRJ)*



tsunami, put out a call for food, clothing, and medicines for relief. According to C. K. "Ram" Raman, VU3DJQ, Sarath was monitoring frequencies on 15 and 20 meters. Indian hams had also established a net on 40 meters.

Victor Goonetilleke, 4S7VK, president of the Radio Society of Sri Lanka (RSSL), reports that "uncomplicated shortwave" radio saved lives. "Ham radio played an important part and will continue to do so," he said in an e-mail relayed to the ARRL. Goonetilleke said that even Sri Lanka's prime minister had no contact with the outside world until amateur radio operators stepped in. "Our control center was inside the prime minister's official house in his operational room," he recounted. "[This] will show how they valued our services."

Goonetilleke reported that even satellite phones failed, and only the amateur radio HF link remained open. One problem: Batteries were running out, and there were no generators to recharge them. A ham radio link was maintained between Hambantota and the prime minister's disaster management office at Temple Trees, and government offices in the stricken area. According to Goonetilleke, "We closed the link after the police got a communications link up in Hambantota. We went in because the district secretary's office only had a satellite phone and communications was difficult." The Hambantota station was operated by Asantha Illesinghe, 4S7AK, Dimuthu Wickremesinghe, 4S7DZ, and Kusal Epa, 4S7KE.

### Desperation Sets In

Goonetilleke reported that none of his family members or friends were killed, although the death toll in Sri Lanka reached more than 70,000. He told CQ that he was "running around and feeling still inadequate in what we are doing as hams. . . . My ordinary life has changed that I didn't realize that I hadn't even monitored the various frequencies I should. I am here with a lot of papers, telephone numbers, and all that, taking calls, answering calls, running to the VHF and HF and trying to coordinate something of a disaster communications link. It is no easy task when a disaster as terrible as this was beyond our thinking plane. The magnitude of the issue is such that sometimes I wonder how we are going to address this. There are heart-breaking situations where a single child remains, a mother, father, and so many lost. All too familiar be it Sri Lanka, India, or anywhere else."

"As President of the Amateur Radio

Society in Sri Lanka," said Goonetilleke, "it was wonderful even at a tragic time to link up south of Sri Lanka with the prime minister, who comes from the south and that is where his people are. So we went in and established this HF link."

### Links to Disaster

"My friends 4S7KE, 4S7AK, and 4S7DZ went in a 4-wheel drive approaching the coastal town of Hambantota from the interior, as the main road along the coast was badly battered and full of debris and was impassable," Goonetilleke continued. "I knew my propagation thanks to George Jacobs (W3ASK, CQ Propagation Editor Emeritus), and I could be 100% sure that we could keep a link going on 3 and 7 MHz. So when all the cellular and all other means failed, shortwave stood bold and proud. It is so simple, and we didn't even have a TS-50 or such a small mobile HF set, but took an ICOM IC-7400, the best radio we have, and two 12-volt batteries and dipoles, some food and water, and filled the rest of the vehicle with food for the displaced. I stood by in Colombo at the prime minister's (residence) to run the link in and coordinate."

Goonetilleke added, "I wish I could scream aloud and tell people in some high places that when all else is dead, SW (shortwave) is alive. What do you do when your power goes out, tele-



*HS1TKD reported shoreline damage, along with casualties. He is also a scuba diver and was assigned to survey for damage of the shore and coral spot in Surin Island. (Photo courtesy of HS1WFK)*

phones go dead, and you can't even charge the batteries of your GTS (Global Telephone System) or mobile phone? We had our Morse key handy if we had to operate with just 1 or 2 watts, but the batteries held.

"Well the forces connected their links 12 or more hours later, but most of the district is so badly battered it will take some time to restore utilities. We operated for 48 hours from the prime minis-



*A portable Echolink station was sent to Sri Lanka for communications back to the United States. It will be left behind as a gift to the Radio Society of Sri Lanka. (Photo courtesy of KD7LRJ)*

## RF, the Internet, and Outer Space

Amateurs in the tsunami-stricken areas lauded the simplicity of amateur radio in getting through when nothing else could, but traditional voice and CW circuits were not the only paths used for communication to and from the affected areas.

### Winlink

While the world's attention was focused on the devastated coastlines of Asia, there were other concerns to mariners at sea. Within hours of the earthquake, members of the Winlink administration team began checking records to see what ships in the Bay of Bengal had used the Winlink system in recent days. There was an immediate attempt to contact each of the ships and cruisers to make sure they were okay. As the days progressed, all ships reported they were safe.

Carl van Heerden, KF4PHC, and Beatrix Bachmann, KF4QBC, e-mailed Winlink developer Steve Waterman, K4CJX, thanking him for a great system and a superb service. "In times like this Winlink has been a blessing and a 'God send,' not just for us, but for our families, who have no other way of contacting us while we are traveling," said Heerden. "As you have gathered, we were under way, headed for the Island of Phi Phi, so due to the fact that we were in deep water, the tsunami had no adverse effect on the boat. On arrival at Phi Phi (4 hours after it hit) we found total devastation on and around the island. Due to lack of information on further waves, *all* vessels were advised to stand 'off shore,' so we carried on to Phuket. Monday morning on the Maritime Mobile net we proceeded to relay information regarding cruising boats. The majority of the tragedies were to the local people and hotel guests, and to date we do not know of any cruisers that were lost in the Thailand area."

Waterman said Winlink 2000 PMBO mailboxes in Perth, New South Wales, Qatar, the Netherlands, Austria, and South Africa are all moving traffic to and from the tsunami stricken areas on whatever basis it is sent. All traffic is sent at the same speed in terms of message flow. According to Waterman, "The only difference in any emergency is that the content changes. I suppose there may be more outbound third-

party information, or more recipients per message, but really no user increases that are noticeable. Unlike other types of systems set up for EmComm, this system is used with or without EmComm daily by 6384 Winlink users to approximately 81,000 e-mail recipients. It takes a *huge* difference to be noticeable."

### Echolink

Thai hams helped relay information between the affected areas along the west coast in the south to government agencies, mostly on VHF and 40 meters, as well as disseminated news and information over VHF frequencies in Bangkok. Echolink allowed local amateurs to relay information to concerned friends and relatives of those vacationing in the affected areas. For about a week, HS1WFK and others provided announcements on conditions in Thailand. In addition, the 40-meter net was able to be simulcast via Echolink to various nodes and repeaters around the world.

With radio propagation being difficult between hams in the affected areas and amateurs in the west, an impromptu network of public-service-minded hams created the Tsunami Relief Net on the Echolink system. The group organized shifts of operators around the world to handle the net control duties. The Tsunami Relief volunteers hoped their efforts on VHF and the internet would keep HF frequencies clear for communication out of the disaster area.

### Satellites

In an effort to lend any assistance possible to the earthquake/tsunami disaster area, AO-51 was configured and opened for use as a store-and-forward message satellite for those in the disaster area. Two weeks after the disaster, AMSAT reported that members had not seen any traffic from the disaster area. However, the overall interest in the satellite PBBS has increased. In fact, there were three times the number of stations accessing the PBBS in the weeks after the disaster than there were before.

Clearly, the tool bag of the amateur radio emergency communicator is expanding. How many tools are in your emergency communications bag?

ter's disaster room and moved out and we are in fax communication with them now, passing info to the coordinating center. We have three stations out there and we are trying to connect lost people, pass info on displaced camps and people and the movement of food and essentials. We are trying to expand our coverage but our resources are limited. Sadly they, even our members, laughed when we wanted a disaster prepared-

ness force. As recent as two months back, the government communications advisor refused to allow a foreign agency stationed here and ICRC to donate equipment when they wanted to upgrade. The Defense Ministry refused as they were out of band, which we said we would modify. Our role has to change as the situation changes. I am here at my desk with my land phone and mobile, a VHF radio, and HF radio con-

stantly tuned to our disaster communications frequencies trying to coordinate as best as I can."

## Northern Sumatra

As the death toll in Indonesia approached 130,000, amateur radio operators continued to supply emergency communications there as well. The Northern Sumatra city of Medulaboh is only 90 miles north of the earthquake epicenter, or about 100 miles southeast of the province's capital city, Banda Aceh. According to its mayor, one third of Meulaboh was destroyed. The only inter-city main road to Meulaboh from Banda Aceh and the southeast region was damaged. For three days the town had been isolated. The only access was by airplanes dropping supplies. Power, telecommunications, and water all were out—but ham radio still functioned.

Anto, YD6AT, in Banda Aceh sent out a distress call soon after the tsunami hit. The ARES station of Medan (the capital city of NS) established an 80-meter contact with YD6AT. According to Wyn Purwinto, AB2QV, a member of the local Military Amateur Radio Service from Lhokseumawe (a city on the east coast) established contact with Banda Aced through a linked VHF repeater. Zulkarman, YC6PLG, and Ady, YB6VK, relayed information between ham radio and the internet to concerned ham radio operators in Indonesia and overseas. Several medical teams with doctors who are hams were sent to Banda Aceh and Nias Island, about 350 miles east of the epicenter. Purwinto told CQ that it was expected that the large number of local and international journalists and the relief support teams would require additional amateur radio support.

## Hams Travel with Relief Teams

As of mid-January we're aware of several amateurs traveling from the United States and Great Britain to the disaster area. Newly licensed ham Adam Steed, KE7EBX, from Lehi, Utah headed to Colombo, Sri Lanka to work with the International Red Cross. Doug McKay, KD7LRJ, said Steed hopes to be able to communicate via EchoLink with his family and members of the Utah ARES group while he is there. Steed's wife is going to try to obtain her amateur license while he is gone. McKay said the local club sent a completely configured and operational EchoLink station. The requirements seemed simple—a 12-volt power supply, a full-time internet connection, and a little configuration. Unfortunately, full-time internet con-

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nections in Sri Lanka are not common. However, Kusal Epa, 4S7KE, was able to supply one. According to Epa, ham radio operators "do not have permission from the Telecom Regulatory Commission to set up internet-linked stations or repeaters in Sri Lanka. The RSSL has applied for this permission, and after exchanging a series of documents and many clarifications (usual red tape), the TRC has asked us to give them a demonstration." The licensing issues were still being worked on as we went to press. McKay e-mailed Epa to say, "When Adam leaves, we would like the EchoLink station and the other items he is bringing to be used by your club to keep in contact with Adam and with us and others around the world."

Two British radio amateurs flew to Sri Lanka in a bid to help in the aftermath of the tsunami/earthquake disaster.

Malcolm Harwood, MØXAT, and John Baker, GØMTQ, carried vitally needed ham radio equipment and medical supplies donated by staff at the British Cattle Movement Service, where Malcolm's wife, Lily, works. Both hams will assist members of the Radio Society of Sri Lanka during a planned one-week stay.

### In Summary . . .

"We will go one day at a time, because the task before us is awesome. How do you get into the mindset of such a disaster?" asked Victor Goonetilleke, 4S7VK. "The coastal lives of the people folded like a pack of cards in just a few minutes. The whole country is dazed and some people are so dazed that they don't realize they are. But then life must go on and every day we get a little stronger to meet the next dawn."

"News media representatives saw our service to the society in the hour of need through amateur radio," said Prasad. "I am also thankful to them in spreading the awareness amongst the public about amateur radio communication. The potential of amateur radio communication in bringing people together is thus established once again."

### With Thanks

This story could not have been told without generous input from all of the amateur radio operators mentioned in this article. Your author is only a messenger. It is people like these who are serving in the public interest. We'll continue to monitor the story and bring additional news next month if conditions warrant. Are you prepared to serve when the call comes? Until next month . . .

73, Bob, WA3PZO