

Earthquakes & Tsunamis

- A Scientist's observation

As consultant for an NGO wanting to assist the victims of the large earthquake and disastrous tsunami of Sun 26 Dec, I have visited areas around the harbour and villages in the S Andaman Island. I talked to people who told me how they fled and escaped the sea waves, but also how they lost some relatives, some property, or their belongings.

At many places, I could sense the fear that prevailed among the people. Thousands of people were anxious to know if another earthquake and/or sea wave of the same magnitude could take place again anytime. In the beginning, when I was out at night in Port Blair, I saw many people sleeping in the street for fear of being killed in their homes. I felt that as a seismic scientist I might be of help and comfort to the people of the Andaman and Nicobar Islands. I want to tell them that they do not need to fear this way any longer.

As a scientist, with more than 20 years of experience in natural disaster monitoring, prediction and mitigation (= relief and rehabilitation), first I worked in Hawaii, and then in Papua New Guinea (a group of islands in the Pacific Ocean). For 18 years I have been a senior scientist to the PNG Govt. As such I lived through some very strong earthquakes, some so strong that one could not keep his balance when wanting to flee. I have seen tsunamis and the horror of the destruction they leave behind them. So I fully understand the anxiety that people have. But I have studied these phenomena, and have learned why they take place, and when they don't take place. And I have a message of hope to give to all, the people of these lovely islands!

Why did it happen?

The huge earthquake (of magnitude 9) that broke out 30 km deep under the sea, off the coast of Sumatra on the morning of 26 Dec. could only happen because a very large amount of stress (= of pressure) had built up in that area of the crust of earth over many decades. Suddenly, that stress overcame the friction between two pieces of the crust of the earth (called "plates"). There was a sudden 15 m movement along a fault system 1200 km long, from Sumatra to the Andaman Is. One must realize that the energy released at that moment was equivalent to 23,000 Hiroshima atomic bombs! As it happened at shallow depth under the sea floor, it shook the ocean from underneath, lifting it up in one jolt by a few meters. The disturbed water wanting to settle down started to spread sideways. It formed the huge waves that travelled at the speed of 800 km/hr (like a jet airplane), all throughout the Indian Ocean. Locally it hit the shorelines very hard, at other places less so, depending on many factors, but primarily on the irregularities and depth of the sea floor off the coast where you live. Will it happen again tomorrow?

The comforting news is that this earthquake, plus all the aftershocks (= the smaller earthquakes that you have felt since) have released a huge amount of energy. It will take decades together before the pressure builds up again in that region to be able to produce another earthquake and tsunami of that size. However, the chances that people would suffer another disaster of that type in the coming years is very, very, very small! Now, one may still feel aftershocks once in a while in the coming 4 to 6 months. The earth plate supporting this

group of islands needs to adjust a bit to the displacement and stress redistribution it suffered. But these earthquakes will be of much smaller strength. They may alarm you again for a few seconds, but will not destroy houses or cause another tsunami.

Also the sea is coming inland, now, as it never did before. That is unfortunately correct: I observed it myself. At least on the coast of the S Andaman Is. and Nicobar Is. the daily tide is now moving in onto the shore, coming over some roads, flowing into near-by houses, flooding paddies, destroying crops and polluting wells with sea water. This is because at the time of the big earthquake, the crust of the earth supporting these islands has moved 15 m sideways, but also about 1 m downward. As a result, at every high tide, the sea is now moving in, sometimes a large distance inland, to make up for that one meter sinking. Unfortunately, it is going to remain like that. I hate to say so, but the islands are not going to rise back up again to the level you have known all your life. I am really concerned for the people particularly in the lowlying areas who may lose their home, land, or gardening plot as a result. They will have to accept this as another reality. It is going to require major engineering work and expenses to try to build protection walls, to protect roads, to raise jetties and docks accordingly. But the Indian people are world renowned as a strong, courageous and industrious people. With strong faith in God's compassion, I am confident that they will overcome grief, settle fears, and rebuild life courageously.

- Dr Patrice Saint-Ours

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Can you believe can differentiate

Rats can tell two languages apart from speech cues, joining humans and Tamarin monkeys in having such abilities, according to a group of Spanish neuroscientists. The group, led by Juan Toro, a PhD candidate at the University of Barcelona, found that well-trained rats can distinguish spoken Japanese from spoken Dutch.

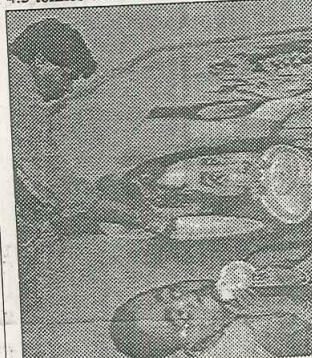
Their study of 16 rats found that "they were able to pick up enough cues from the rhythm and intonation of human speech

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'Smashing hole' in may reveal key to so

The "smashing" of a hole in a far away comet by a NASA spacecraft July 4 this year might reveal frozen remains from the early years of the formation of the solar system, reports Xinhua. According to scientists, NASA's 'Deep Impact' spacecraft will "smash" a hole in Comet Tempel 1, which is about 132 million km away from the earth, at a speed of 37,000 kmph. The craft will release a 372-kg projectile one day before the craft runs into the comet. National Aeronautics and Space Administration (NASA) scientists say the force of the "smash" by the 330 million-US dollar comet probe mission would be equivalent to 4.5 tonnes of TNT.

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Famous "Rangoli" artist from Chhattisgarh
400 ft long 'Rangoli' based on visuals of
during an exhibition dedicated to the Tsu