

Scientists set sail to study tsunami risk



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Scientists from the Nanyang Technological University (NTU) are launching a month-long sea voyage to assess tsunami risk and its impact in a region off Indonesia.

The region west of Sumatra is considered a high-risk zone, where earthquakes that cause tsunamis are produced.

This was also the birthplace of the 2004 Indian Ocean tsunami which claimed more than 230,000 lives across 14 countries.

About 10 scientists, including those from NTU's Earth Observatory of Singapore, will be part of the expedition, which sets off on Saturday.

It is a tie-up between NTU, the Schmidt Ocean Institute, France's Institut de Physique du Globe de Paris and the Indonesian Institute of Sciences.

The American non-profit ocean institute, co-founded by Google executive chairman Eric Schmidt, conducts oceanographic research.

The trip - on board the institute's 83m-long research vessel Falkor - aims to use sonar systems to penetrate depths of up to 5,000m and map the ocean floor where tectonic plates meet.

This will allow scientists to detect fault lines and deformation, enabling them to better understand earthquakes of the past - essential for predicting future quakes, said the Earth Observatory's Professor Paul Tapponnier, one of the project's chief scientists.

The scientists will be sailing into uncharted territory.

"Most of (the continent) is under the sea, and while geologists have many tools to study earthquakes and changes in the landscape on land, we don't have such tools to study the sea... There was no large enough oceanographic research boat in Singapore," Prof Tapponnier explained.

The latest expedition, which is on a vessel equipped with laboratories and special facilities, aims to fill this gap.

The research will target the region west of Siberut Island - an offshore island near the city of Padang on Indonesia's west coast - identified as the Mentawai Gap.

This is the only area of the geologically active Sumatra-Andaman subduction zone - where one plate moves beneath another, causing immense pressure to build up - that has yet to produce a major earthquake in the last 200 years. So, scientists believe one is due in the next few decades.

Prof Tapponnier said: "We know the plates in the Sumatra- Andaman subduction zone move towards each other at about 4cm a year, which results in earthquakes roughly every 250 years. If we have better knowledge of the ocean floor and understand the mechanisms that cause tsunamis, we can help people to better prepare for the eventualities."

All information and data obtained from the expedition, such as high-resolution maps of the ocean seabed, will be shared publicly.

Dr Haryadi Permana, director of the research centre for geotechnology from the Indonesian Institute of Sciences, said the data could help the country better prepare for disasters.

There are many who could benefit from advance warning and preparation.

In Padang alone, more than 500,000 people live less than 5m above sea level, and more than seven million people live along the central and southern coasts of Sumatra and the Mentawai Islands, which Siberut Island is part of.