

## Marine terraces in the Neil Island east off the southern part of Andaman Islands, India

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Although the Neil Island located east off the southern part of the Andaman Islands was not coseismically deformed associated with the 2004 Sumatra-Andaman earthquake, several levels of marine terraces suggesting occurrence of repeated uplift event have been developed along the coast.

After the 2004 earthquake, we carried out paleoseismological survey in the Andaman Islands at March 2005, March and December 2006. Based on the height of uplifted corals and tide gauge data, it is inferred that coseismic crustal movement of the islands was southeastward tilting accompanied with uplift of 1.5 m in the northwestern part and subsidence of 0.95 m in the northeastern part (Kayanne et al, 2007). Several levels of higher uplifted corals and trenching survey result suggest that same type of movement has repeatedly occurred before the 2004 event. However, such analogy can not be applied to the Neil Island.

The Neil Island which has 6 km in length and 3.5 km in width is located 25 km east off the Andaman Islands. Although this island was tectonically stable during the 2004 earthquake, satellite image analysis shows that several marine terraces enclose the island. Thus we field-surveyed to clarify the uplift process of this island by identifying the marine terraces. Judging from topographic profiles obtained by measuring on four lines, marine terraces that have probably been emerged during Holocene can be divided into five levels named 1 to 5 in descending order. Elevations of each terrace surface are as follows; 1: 6-8 m, 2: ca. 4 m, 3: 1.2-3.5 m, 4: 0.5-3.5 m, 5: 0.5-2.5 m. Outcrop on the 2 surface, we observed back reef deposit composed of gravel and silty sand containing rich coral fragments. Fossil micro atolls showing growth varve are exposed on the 5 surface.

In the south-central coast, we found emerge micro atolls beneath the terraces. The shape of these micro atolls appears quite different to the 2004 uplifted micro atolls in the northwestern part of the Andaman Islands. Emerged micro atolls in the Neil Island are characterized by stratovolcano-like shape that indicates relative sea level has gradually fallen.

The presence of marine terraces suggests repeated uplift events and possibility of future uplift. This admits of two interpretations for uplift process, that are coseismic uplift induced by different source from the 2004 earthquake or postseismic creep propagated on deeper plate interface associated with the 2004 type earthquake. However, the latter is more plausible because the shape of emerged micro atoll shows gradual uplift. The Neil Island may gradually uplift in future. We have to continue to carefully observe the postseismic movement.