

Trench survey in the southern part of the Andaman Islands subsided during the 2004 Sumatra-Andaman earthquake

Masanobu Shishikura[1]; Yasutaka Ikeda[2]; Tomoo Echigo[3]; Hajime Kayanne[4]; Kenji Satake[1]; Teruyuki Kato[5]; Javed N. Malik[6]; Shaikh Basir[7]; Gautam Chakraborty[7]

[1] Active Fault Research Center, AIST, GSJ; [2] Earth & Planet. Sci., Univ. Tokyo; [3] GRI; [4] Earth & Planetary Sci., Univ. Tokyo; [5] Earthq. Res. Inst., Univ. Tokyo; [6] Indian Institute of Technology Kanpur; [7] Geological Survey of India

We found the evidence of past subsidence event from trench excavation survey in the southern part of the Andaman Islands that was subsided during the 2004 Sumatra-Andaman earthquake (M9.3). In March and December 2006, we conducted excavation survey at three sites for trenching and five sites for Handy Geo-Slicer coring in coastal marsh near Port Blair. Because this area was 1m subsided, all sites are almost equal to mean sea level and are inundated during daily high tide after the 2004 earthquake. We observed deposits until 2.7m depth, and identified four units. Stratigraphy and lithofacies are as follows; 1: The lowest unit is lagoon deposit mainly consists of silty sand containing rich shell and plant fragments. Upper part of this unit gradually changes to peaty silt. 2: This unit is composed of massive clay that was deposited probably in sub-tidal environment, and covers Unit 1 with sharp boundary. Remarkable feature of this unit is that sand dike is intruded. 3: This unit shows chaotic facies that mud crust and plant fragments are mixed with silty sand. 4: Top unit is inter-tidal deposit composed of very fine-fine sand characterized by parallel lamination.

Abrupt facies change from unit 1 to unit 2 suggests that submergence occurred due to probably crustal subsidence. Sand dike indicates that seismic event occurred after deposition of unit 2. Because the depositional environment of unit 3 is not clear, it is difficult to detect land level change after the submergence event of unit 2. We will propose the interpretation after obtaining radiocarbon dating result of samples from each unit.