

Report on visit to Earthquake Research Institute, University of Tokyo

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Position : Visiting Researcher
Period : 1 month (June 11 to July 10, 2009)
Host : Prof. Kenji Satake
Institute : ERI, University of Tokyo

It was fantastic experience staying at ERI, University of Tokyo for one month from June 11 to July 10, 2009. Since last 4-years ERI and IITK have been working in collaboration on the Andaman Islands with an aim to identify evidence of large magnitude earthquakes and tsunamis that have occurred in this region during historic past. We have identified several such signatures from the sediment records. The aim of the visit to ERI during June-July, 2009 was (1) to develop further understanding on the tectonic deformation pattern and the signature of land-level changes observed from sediment records from Andaman Islands, (2) to explore the possibility of future collaboration between ERI and IITK on palaeoseismic studies with special focus on paleo-tsunami and coastal tectonics in Andaman Islands.

Several rounds of discussion were held with Prof. K. Satake, ERI, University of Tokyo; Profs. Y. Ikeda and H. Kayanne, Department of Earth and Planetary Sciences, University of Tokyo; Dr. M. Shishikura, GSJ, Tsukuba and Dr. T. Echigo, Geo-Research Institute, Osaka. During these meetings we have been able to finalize the followings from the data so far collected from Andaman Islands:

- 1) Paleoseismic investigations around Flat Bay near Port Blair, South Andaman Islands, India, revealed evidence of two major earthquakes during recent historic past.
- 2) Abrupt change in lithology marked by sharp contact between the peaty layer and overlying clayey-silt unit suggests subsidence of about 1 m or more during first older earthquake, causing change in depositional environment from marshy to sub-tidal and lagoonal condition.
- 3) The overlying chaotic layer with abundant mud clasts with sandy matrix indicates liquefaction during a younger earthquake. The unit capping the chaotic unit comprised of laminated fine-medium sand and silty-mud are deposited by tsunami during the second event.
- 4) Radiocarbon ages suggest that the older earthquake occurred at around 1670 AD or later. This earthquake was not accompanied with strong ground shaking, similar to the 2004 Sumatra-Andaman event. The second earthquake occurred after the first event or 1670 AD, accompanied with strong ground shaking resulting in liquefaction and tsunami that brought deposits. Based on the historical record the second event may possibly be related to the 1762 Arakan earthquake.