

Evidence of Late Holocene subsidence and tsunami deposit from west coast of Andaman Island, Andaman and Nicobar Islands

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The Tirur village located about 1.5-2.0 km inland along the western coast of Andaman experienced marginal subsidence during 2004 Sumatra-Andaman earthquake. The area was found inundated during 2005. In 2009-10 we observed that the area was transformed to tidal-marsh. To identify the signatures of past seismic events if any preserved in sediment stratigraphy 2-3 trenches were dug and 3 geoslice sections were obtained from Tirur. At Tirur the exposed stratigraphic section in trenches and geoslices revealed occurrence of a thick (~40 cm) peaty unit - probable represents tidal-marsh or wetland. At places the peaty unit is disturbed by intrusion of sand dykes, caused by liquefaction due to strong ground shaking during Event (I) as well as bioturbation. About 12-15 cm thick poorly stratified unit comprised of peat+medium-fine sand above peaty unit suggests deposition during subsequent phase of deposition after the event, probably in a tidal-marsh/intertidal environment (?). The area experienced subsidence which could be justified by the overlying silty-clay unit suggestive of intertidal condition. The sediment sequence in the upper section with silty-sand and a peaty unit suggests gradual change from intertidal to tidal and to marsh or wetland. This could be related to gradual emergence of the area during interseismic period. Finally the area was again subsided during 2004 Sumatra-Andaman earthquake, again getting converted to tidal-marsh. AMS of rhizome and charcoal, OSL age of the sediments suggests that the Event-I occurred during 3000-3500 yr BP and a gradual uplift during 1100-230 yr BP. Two geoslices samples obtained from Collinpur-char village located along the coast of South Andaman Island revealed occurrence of multiple layered tsunami events. Our preliminary inference suggests that at least 2-tsunami (??) events that occurred during 3800 yr BP and 1200 yr BP.

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