



Evidence of Late Holocene Cyclic Events of Subsidence and Uplift from West Coast of Andaman Island, Andaman Islands, India

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The study area located about 2.0-2.5 km inland along the western coast of Andaman Island, experienced marginal subsidence during 2004 Sumatra-Andaman (Mw 9.3) earthquake, was found inundated during 2005. Near sub-surface sediment stratigraphy revealed signatures of land-level changes that occurred during 3000-1000 years BP. The bottom most thick layer of clayey silt (unit a) suggested a long term calm and stable deep environment spanned before the earliest event recorded from the study area. Event I caused major coseismic uplift in this region as indicated by the sharp basal contact of the overlying thick peaty horizon (unit b), afterwards there occurred coseismic subsidence followed by Event II, where subsidence prevailed for a long time span due to successive post-seismic subsidence as reflected by the fining upward sequence within the silty-sandy thick horizon (unit c, unit d, and unit e). During that period depositional environment had changed from shallow (silty sand) to deep (clayey silt) as a consequence of continuing subsidence after the probable Event II. Recurrence of Event I type earthquake as Event III caused major coseismic uplift in the region leading to the formation of the top thick peaty horizon (unit f) with a sharp basal contact that also remained stable for a long time span. Cycle repeated due to recurrence of Event II type earthquake as Event IV (2004), which caused coseismic as well as post-seismic subsidence and thus the area get converted into tidal-marsh leading to the deposition of top sandy soil (unit g). However it has been noticed that after 2005, the area again started rising from the subsidence as indicated by the GPS observations and the same also reflected in coastal geomorphology and sedimentology. AMS ages of rhizome/charcoal and OSL ages of the sediments suggest that the Event-II occurred during 3000-3500 years BP and a gradual subsidence had spanned during 1100-230 years BP. We report here the evidence of past land level changes observed until 2011 along the western coast of Andaman Island.