



Identifying paleotsunami deposits in Thailand using geochemical analyses

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Paleotsunami research has received considerable attention following the devastating Indian Ocean tsunami of December 2004. Specific questions involve the magnitude, frequency and impact of past tsunamis. Phra Thong Island in the eastern Andaman Sea is an ideal location to study paleotsunami deposits in great detail (Jankaew et al., 2008). Apart from the 2004 Indian Ocean tsunami layer, three more distinct tsunami layers, separated by soil horizons have been identified and dated (Jankaew et al., 2008). In a collaborative project between Stockholm University and Chulalongkorn University, four sites on Phra Thong Island were chosen for detailed geochemical studies and additional AMS ¹⁴C dating. Paleotsunami deposits at these sites can be seen as more or less distinct sand layers embedded between the peaty soils. Here we report the initial results of XRF core scanning and loss on ignition analysis, which are supplemented by new ¹⁴C dates. The XRF data sets show a good correlation between synchronous tsunami layers along a coast-inland transect. The geochemistry moreover suggests a change in source area for the oldest tsunami layer. Further work will focus on a detailed geochemical characterization of the tsunami and soil layers, and on the influence of soil processes on the geochemical record.

Reference:

Jankaew, K; Atwater, B; Sawai, Y; Choowong, M; Charoentitirat, T; Martin, M; Prendergast, A, 2008. Medieval forewarning of the 2004 Indian Ocean tsunami in Thailand. *Nature* 455, 1228–1231.