

New findings from recent tsunami deposit survey along the north-western coast of Aceh Province, Sumatra island

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We studied tsunami deposit along the north-western coast of Aceh Province, Sumatra island, to reconstruct tsunami recurrence for past several thousand years. This area was severely affected by the 2004 tsunami. We investigated modern and past tsunami deposit there by excavating using a corer and a geo-slicer.

In Calang, we found a clear sand layer at about 1 m beneath the present surface. We also found a sand layer at the similar depth in Meulaboh, located about 45 km south from Calang, and this layer was dated to be 1000 years BP. Monecke et al. (2008, Nature) also reported a tsunami deposit of the same age in Meulaboh. If these sand layers are all tsunami deposits produced by one event of 1 000 years BP, the tsunami has to be large enough to affect more than 40 km wide area along the coast.

We investigated not only the paleo tsunami deposit but also the 2004 tsunami deposit in this area. Based on the eyewitness accounts, at least a part of Calang were covered with characteristic tsunami deposits composed mainly by mud. We could find these muddy deposits of about 40 cm thick including thin sand layers at the base. These muddy tsunami deposits have not been described well before. It must be important to study them for identification of paleo tsunami deposit in muddy peat to understand their depositing process and to identify paleo tsunami deposits of these kind in peat.

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