

Investigation of paleo-earthquake evidences along the western coast of Myanmar

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The western coast of Myanmar is constituted by the northern extension of Sunda Trench along which the Indian plate is subducting beneath the Burma microplate. Based on the previous literature, large earthquake and tsunami events repeatedly occurred around the Indian Ocean, and most of these events were concentrated along the Sunda trench and its northern extension western coast of Myanmar since as early as 1750 (Berninghausen 1966). The giant 2004 Sumatra-Andaman earthquake and tsunami is an example of these events. We will conduct paleoseismological field investigation along the western coast of Myanmar to document the evidences for past earthquakes and tsunamis events that occurred along the off western coast of Myanmar. Previous works reported about the 1750 and 1762 events with geomorphological evidences but with lack of geological evidences such as tsunami deposits (Chibber 1934, Berninghausen 1966). The investigation purposes to document (1) the coseismic and interseismic uplift or subsidence recorded in coral reefs and coastal topography, and (2) the recurrence and height of ancient tsunamis recorded as tsunami deposits due to the past earthquakes.

Three approaches are made for investigation of paleo-earthquake evidences, and are consisted of geological, geomorphological and geochronological studies. Geological approach is intended for investigation of Holocene sediments from tidal marsh flat and coastal lagoon. Sedimentological observation on these Holocene sediments could expect to identify the origin of depositional source of these sediments whether tsunami deposits or not. Geomorphological approach consists of investigation of sea cliff, sea cave, coastal terraces and coral reef which can give clues to verify coastal topography changes with respect to relative sea level. Coral reef, the indicator of sea level changes, is primarily focused to investigate. Geochronological studies deals with the dating measurement of the sediments and coral reef which are supposed to be uplifted or subsided based on the results of geological and geomorphological observations. Dating according to the available historical documents is also considered to undertake.

The localities planned to investigate are chosen as (1) Thandwe and its surrounding areas and (2) Sittwe and its surrounding areas because large area of the western coast including the two areas were considered to be occupied by coastal uplift and inundation of tsunami wave due to 1750 and 1762 events (Chibber 1934). The satellite image data and available geomorphic map suggest that two kinds of exposure are thought to have in the two localities, coral reef and low-lying tidal flat zones.