

TECHNICAL REPORT

PALEO-TSUNAMI DEPOSITS INVESTIGATION FOR TSUNAMI HAZARD ASSESSMENT IN EAST SABAH

PROJECT NO: 04-01-10-SF0173

**SCIENCEFUND
MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION**

DURATION: March 2012 - December 2014

**PERPUSTAKAAN
UNIVERSITI MALAYSIA SABAH**

**Felix Tongkul
Hazlinda Ibno
UNIVERSITI MALAYSIA SABAH**

**Tajul Anuar Jamaluddin
UNIVERSITI KEBANGSAAN MALAYSIA**

April 2015



2. EXECUTIVE SUMMARY

The main objective of this study was to characterise coastal deposits and to identify plaeo-tsunami deposits in Eastern Sabah. To achieve these objectives, a total of 13 sites from six districts were investigated using shallow core sampling (1-2 m depth) and trenching (1-2 m depth) methodologies. Two sites were studied in Pitas District, namely Kg. Inaruntung North and Kg. Inaruntung South; two sites in Sandakan, namely, Kg. Dandulit and Pulau Berhala; two sites in Kinabatangan, namely Kg. Pamanhutan and Kg. Longpatau; two sites in Lahad Datu, namely Dent Haven Bay and Kg. Tanjung Batu; two sites in Semporna, namely Kg. Pakalangan and Ladang Pegagau; and three sites in Tawau, namely Kg. Mas-Mas, Kg. Batu Payong and Kg. Hidayat. These sites were selected based on their coastal geomorphological setting which are low-lying areas. Based on the results from 68 trenches from 13 sites, no paleo-tsunami deposit was positively identified in East Sabah. The coastal deposits are mostly fine to medium-grained beach sand produced by low energy waves, with several occurrence of very coarse to gravelly beach deposit produced by strong storm currents. Radiocarbon dating suggest that these coastal deposits were deposited since 4,000 years ago. While this study did not identify tsunami deposit, it does not mean that tsunami waves never occurred in Eastern Sabah. The limited number of trenches dug in selected accessible areas may have missed tsunami deposit. It is recommended that continuous in-depth characterization of coastal deposits, including dating the sediments and determining their microfossil content, should be carried out to look for tsunami deposits. The focus of the study should be along the inaccessible coastal area of Tawau from Kg. Batu Payung to Ladang Pegagau, where diverse types of coastal deposits were observed. It is also recommended that detailed tsunami inundation models should be used to locate potential areas where tsunami deposits may have been left behind in this area.

