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The Distribution and Characterization of Volcanic Ash in Padang Terap, Kedah

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Throughout Quaternary period, multiple volcanic outbursts reported to occur in Sumatera. Based on various microscopial and chemical analysis conducted, volcanic ashes found at localities within Peninsular Malaysia is believed to be originated from these eruptions. Detailed mapping and characterization of reworked volcanic ash in Padang Terap, Kedah area is done to understand the depositional process and the reworking mechanisms. On-site stratigraphy shows association of volcanic ash layers with pebble fluvial deposits, sedimentary structures such as cross lamination, planar lamination suggesting fluvial environment of deposition. Oxidised layer within volcanic as beds are observable by orange coloured layer that marks the change in porosity and permeability of volcanic ash grain layers. Grain size analysis shows very poorly sorted, fine skewed to very fine skewed, mesokurtic to very leptokurtic and trimodal to unimodal distribution in nature. Other than that, mud sized bimodal tephra layers overlain by packages of biotitic coarse sandy layer with overlying mud sized volcanic ash top at Kg Padang Gelanggang suggesting two phases of depositional processes. The geomorphological controls on the distribution pattern of volcanic ash in this area is also highlighted. In general, Padang Terap is located at the west-northern edge of Bintang Range and containing two almost parallel ridges of Semanggol Formation within it. The easternmost ridge divide Padang Terap River into higher-stream high energy and lower-stream low energy environment that is classified based on sedimentological observation. Volcanic ash beds are found on plain area river terrace 1, T1 only. Geomorphological condition of the area controls the capability of the area to preserve volcanic ash that is reflected by the thickness of volcanic ash beds.

Next, in collaboration with Minerology and Geoscience Department (JMG) of Kedah, geotrail and few other development plan of Padang Terap as geoheritage site are also provided in this study. The abundance of volcanic ash beds in Padang Terap area with variation kind of layers and different characteristics is one of the key factor that makes this area as an important site for tourism activity. Besides, the location is also significant in terms of ecological and cultural relation as it is a home to Siamese and Malay culture. By providing well planned geotrail, Padang Terap Gallery as well as systematic bus services hopefully Padang Terap Geoheritage will be more visitor-friendly. Thus, contributes in sustainable development of the country itself.

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