

Quaternary stratigraphy and occurrence of the Australasian tektites in Thailand, Laos PDR, and Cambodia: implication of the impact location

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Quaternary sediments and stratigraphy in northeastern Thailand, southern Laos PDR, and northeastern Cambodia have been investigated and studied. A 0.8 Ma tektite-bearing sedimentary layer was recognized in association with basal breccia sediments ranging in sizes from pebbles to granules regarding as a key bed layer representing a 0.8 Ma marker. The tektites were mainly splash-form with some Muong Nong-type, layered, at some places. They were mainly discovered as floated specimens on ground surface but some tektites were on site as in situ occurrence at a certain stratigraphic position mostly along the interface between the basement and the key bed layer generally coated by iron oxide as ferricreted layers. These in situ tektites were widely discovered in Thailand, Laos PDR, and Cambodia. The basements supporting the key bed layer are gravel and sand deposits with petrified woods in general as well as the Mesozoic sandstone bedrocks. Some gravel deposits overlay the Cenozoic basalt flows whereas some basalt gravels are also of constitution of the gravel deposits. Whereas, the sediments over the tektite-bearing key bed are widely distributed over the region characterized by structureless reddish orange fine-sand deposits with basal breccia granules and pebbles in association with some in situ tektites regarding as ejecta materials. The stratigraphic succession over the key bed were vertically and laterally varied over the region. In Thailand and Cambodia, they were characterized as tektite-bearing fine sand deposits that is clearly visible in northeastern Thailand designated as some soil series by the Land Development Department with thickness ranging from 3 to 5 meters. The basal part of the ejecta deposits varied into pebbles of sandstone fragments in Laos clearly visible in some areas of Salavan Province. This type of sediments is probably hidden under the younger basalt flows in the areas of the Bolaven Plateau. This Quaternary stratigraphic succession and the occurrence of the Australasian tektites can be speculated that the impact location is highly reliable that it is at a location within the southern Laos PDR around 0.8 Ma.

Keywords: Australasian tektites, basal breccia, impact location, Indochina