Carbonate platform development of Wang Sa Pung Fomation in Loei province, Northeastern, Thailand

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ABSTRACT

Wang Saphung Formation at the northeastern part of Thailand, Ban Na Din Dum, Loei province were studied for describing its development based on petrographic and scanning electron microscope analyses. It covers a restricted area along the northwestern margin of the Indochina terrane. A studied section composed of conglomeratic limestone, dolomitic limestone contained brachiopods, calcareous shale and thin bed limestone, and marine siliciclastic sequences. The conglomeratic limestone and brachiopod bearing limestone were indicated the deeper water ramp of carbonate platform margin (fore slope) and open basin or back ramp profiles respectively. The lower part is composed of radiolarian shells and microbialite. The cover part is composed of mainly calcareous shale that indicated the deeper water conditions with no current agitation and sparse sediment influx.

Eventually, a depositional depth could have been deeper than the fore slope. It consists mainly of microbial laminites and thin- to platy-bedded lime-mudstones. Lastly, a shallowing upward trend occurs in the upper part, which was interpreted by an increase of the abundance of fine-grained sand, silt, and clay and intercalation of limestone - sandy limestone with sandstone in the late stage. Under these circumstances, the carbonate platform was formed a locally intraformational conglomeratic dolomitic limestone that was deposited on the slope and interbedded with laminate to thin-bedded limestone in the lower part. Triticites sp. in the intraformational conglomerate suggested the Latest Carboniferous and grad to Permian limestone bearing Spiriferid sp. in the cover units. Moreover, brachiopods Martinia sp. and Martiniid sp. were discovered in overlying fine-grained siliciclastic. These pieces of evidence are suggested that transgression and regression cyclic occurred in Latest Carboniferous (Wang Saphung Formation) to Early Permian (E-lert Formation) before changing to forwardly deeper environments.

Keywords: Wang Saphung Formation, E-lert Formation, *Triticites* sp., *Martinia* sp. and *Martiniid* sp.