DYNAMIC STRATIGRAPHY & TECTONICS OF PENINSULAR MALAYSIA

Problems & issues relating to the Stratigraphy and Tectonics of Peninsular Malaysia

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ABSTRACTS OF PAPERS

Slide-rule tectonics, Sundaland

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Continental SE Asia, that is, Sundaland and Indochina, achieved relative tectonic stability by the beginning of the Cenozoic. Since then tectonic activity has been restricted to existing regional fault zones and to slow vertical crustal movements that produced small and large sedimentary basins. Since the Middle Eocene, Sundaland and Indochina have been extruded differentially SE-ward along the Red River, Wang Chao-Mae Ping-Tonle Sap and Three Pagodas-Axial Malay fault zones. During the Palaeocene the stress regime of Sundaland was transtensional while the regional faults slipped in sinistral sense. The large continental segments contain smaller crustal slabs that are also bounded by NW faults, and less frequently by N-S faults. At times these smaller crustal slabs also participated in differential extrusion. The sliding of smaller and larger crustal slabs past each other resembles slide-rule operations.

From the end of the Early Miocene, the stress regime in Sundaland has become transpressional. This situation was achieved because N-S spreading of the Philippine and Caroline subplates stopped and thus ceased to act as barriers for the westward convergence of the Pacific plate, while the larger Indonesian region — including Sundaland — had also become severely constricted by the sustained convergence of the Indian Ocean-Australian plate. Slip reversals took place on some of the regional and other major faults contemporaneously with structural inversion in the Malay basin. Slide-rule tectonics was again evident.