

CERAMAH TEKNIK TECHNICAL TALK

A review of the Bentong-Raub Suture vis-à-vis new insight of the tectonic evolution of Malay Peninsula

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The talk on the Bentong-Raub suture was presented by Prof. Dr. Aftab Alam Khan, a visiting lecturer to the Department of Geology, University of Malaya from the University of Dhaka, Bangladesh. The talk was presented twice, first at the Lecture Hall of the Department of Geology UM, and then at the Meeting Room, Faculty of Science & Technology, UKM. Both talks were well attended by faculties and graduate students of both universities.

Abstract: Longitudinal and medial morpho-tectonic ridge that makes up the spine of Malay Peninsula is known as the “Bentong–Raub Suture” where typical suture zone assemblages such as ophiolite, pillow basalt, glaucophane schist, melange, flysch, jaditized greywacke are missing. Earlier recognized Bentong–Raub Suture is not a subduction-related collision margin rather, it is a rift-related fault zone separating the Central Belt and the Western belt of the peninsula that has accommodated most of the transpressive motions of the crust resulting in the closure and exhumation of the Central Belt along the fault zone. Similar crustal thickness (average ~35 km) of the Western, Central and Eastern belts derived from gravity modelling suggests a single continental block of Malay Peninsula that has drifted from East Gondwanaland and collided with South China during Permo-Triassic. Westward subduction of the intervening ocean between Malay Peninsula and South China resulted widespread granitization in the Triassic along with volcanics. Granite plutons are characterized by continental arc, rift-related continental eruption and upliftment related magmatism. Extensive occurrences of Triassic Pahang Volcanics of predominantly rhyolitic tuff suggest its derivation from back-arc extension. Back-arc extension, basin development and sedimentation of the Central Belt continued until Cretaceous. A-Type granite of metaluminous to peraluminous character indicate their emplacement in an intraplate tectonic setting. Westward extrusion of Malay Peninsula resulted an anticlockwise rotation in the Late Cretaceous–Early Tertiary due to the rifting of Luconia–Dangerous Grounds from the east Asia. Extensive ductile and brittle deformations including crustal segmentation, pull-apart fracturing and faulting occurred during the closure and exhumation of the Central Belt along the Bentong–Raub morphotectonic zone. Crustal shortening of the Central Belt is accommodated through strikeslip displacement, shearing and uplift.