Paper A17

Fault patterns in Peninsular Malaysia: Origin and development

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Major lineaments shown on satellite images (Figures 1 and 2) of Peninsular Malaysia occur in distinct patterns (Figure 3) that reflec their association with associated, dominant lithologies. In some cases the lineament patterns also indicate sequential development. Radiometric ages of major fault zones indicate that actual tectonic activity in PM ceased by 43-45 Ma, or intra-Eocene. Younger crustal movements have probably continued periodically since then, but only evidence from Quaternary and Recent events of reactivation of existing faults are documented with certainty. As examples are (a) the fault pattern in the Quaternary Kuantan basalt that mimics that in the Carboniferous rocks of the Sungai Lembing area, and (2) the 2008-2009 tremors that are closely associated with the major Bukit Tinggi fault zone in the central Western Belt of the Peninsula. It is very likely that the latter swarm of mild earthquakes had been induced by tectonic events at the plate boundary that surfaces as the Sunda Trench off Sumatera. Repeated GPS readings appear to confir the interpretation.

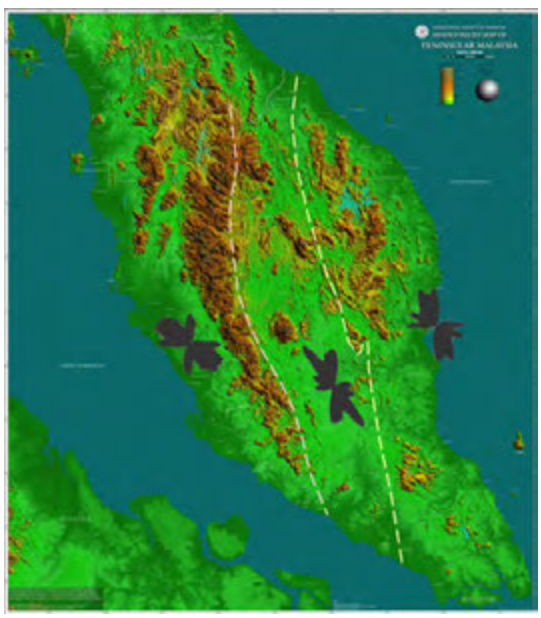

Figure 1: Three-fold division of Peninsular Malaysia : Western Belt, Central Belt and Eastern Belt.

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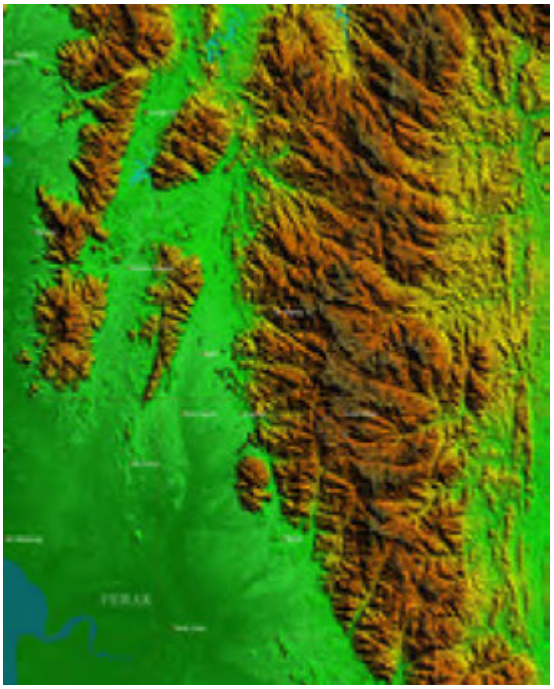

Figure 2: SRTM of part of Peninsular Malaysia displays lineaments.

Figure 3: Lineament patterns derived from SRTM. Western Belt (total length = 753.1 km), Central belt (total length = 290.8 km) and Eastern Belt (total length = 515.8 km). Most linemaments are NW-SE in the Western Belt; some showing N-S and E-W orientations. In the Central Belt the dominant ones also show NW-SE; while in the Eastern Belt are mostly N-S.