

Sea-level changes in two geologically different environments: Peninsular Malaysia and Sabah

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21st November 2012

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Abstract: During the Last Glacial Maximum (LGM) some 20 thousand years ago, a vast land area formed the Southeast Asian subcontinent. Borneo, Jawa, Sumatera and the seas among them were part of the landmass of Asia. Gigantic rivers drained the subcontinent into the South China Sea and into the Flores sea. When global ice masses melted, sea level rose at 15 mm/y, transgressed present datum to reach its maximum elevation of some 5 metres at 4300 year Before Present. A substantial number of biogenic (fossil rock-clinging oysters, calcareous algae, *Tridacna* sp. in growth position, and certain solitary corals) and geomorphological shoreline indicators (abrasion platforms, mid-tide notches on cliffed coasts, and intertidal calcareous beachrock) provide evidence. Subsequently sea level descended stepwise three times, to attain its current position several hundred years ago. These were regional secular sea-level changes as the palaeo-sea-level indicators were determined from tectonically stable Sundaland (Peninsular Malaysia and the Indonesian tin islands Bangka-Belitung-Kundur).

On the other hand, radiometrically dated palaeoshoreline indicators in Sarawak and especially in Sabah show average annual uplift rates of the land in the range of 5 to 7 millimetres during the past 30 thousand years. For instance, the coral reef base of Semporna town formed during the LGM and thus experienced some 120 metres uplift to reach its present position of 2-3 metres above sea level.
