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P3B-2

NEW TRACE, MAJOR AND RARE EARTH ELEMENT DATA FOR THE EARLY PLEISTOCENE ALKALI BASALTS AND OLIVINE NEPHELINITES FROM KUANTAN, PAHANG: PLUME-RELATED RIFT VOLCANICS OR WRENCH-RELATED CRUSTAL EXTENSION?

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ABSTRACT

The Kuantan Basalts are one of the very few bodies of basic intrusives in Peninsular Malaysia. It was erupted too late to have been caused by the mid-Oligocene extension that formed the sedimentary basins off the Peninsula's East Coast, or by the compression beginning in the mid-Miocene that followed it. This paper presents new trace element data for alkali olivine basalts and olivine nephelinites belonging to the Kuantan Basalt. Both are enriched in incompatible elements and LREE, with signatures comparable to Oceanic Island Basalts and East African Rift basaltoids. They plot in the Intraplate Basalt field on a Zr-Ti-Y discrimination plot. The geochemical evidence, as well as the timing, points to a mantle plume-related genesis, rather than one related to wrench tectonics-induced extension.