CERAMAH TEKNIK TECHNICAL TALK

Tertiary-Quaternary volcanism in the Sarawak interior, and its implications for the continuing tectonic history of Borneo

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The above talk was jointly organised by the Minerals and Geoscience Department of Malaysia (JMG) and the Geological Society Of Malaysia (GSM) at the JMG Office in Kuching, Sarawak on the 17th June 2010. The speaker was Dr. Nur Iskandar Taib of University of Malaya. The talk which was attended by about 80 JMG staff provided a platform for discussion among geologists from the university and the government department on current research area and interest in the volcanic rocks of Sarawak. This include dating the age of the volcanic rock and and its relationship with tectonic activity.

Abstract — The Upper Rajang Valley covers a large area in the interior of the island of Borneo. It is underlain by the Cretaceous to Late Eocene deep to shallow marine sediments of the Rajang Group. Within this area are several Cenozoic volcanic edifices, which to date have been sparsely studied.

Two distinct episodes of volcanism are recognized – the first, dated early Eocene, consists of K-rich basalts, and is represented by the Bukit Mersing volcanics, which were erupted conformably onto deep water turbidites of the Rajang Group. The second, far more extensive, is dated Pliocene to Quaternary, and is bimodal, consisting mainly of early dacite and rhyodacite tuffs, with a smaller amount of later basalt, forming several volcanic plateaus and massifs (Hose Mountains, Usun Apau, Linau-Balui, Niewenhuis Mountains and others). They lie unconformably over pre-Miocene sediments, the Linau-Balui basalts having been erupted onto Quaternary river terraces.

Mantle-normalized REE and incompatible trace element spider plots reveal that the Bukit Mersing basalts have geochemical affinity with Oceanic Island Basalts (OIB) and rift basalts, being enriched in LREEs and Most Incompatible Elements, and no Eu anomaly. Preliminary trace element data for several basalt samples from Usun Apau also show Oceanic Island/Rift affinity.

Bimodal volcanism is most often associated with rift environments. Efforts are being made to radiometrically date the volcanics, in part to determine the possibility of future eruptions. The Upper Rajang Valley is remote, covered in tropical rainforest and is very sparsely populated. At this time, there is no information concerning signs of imminent volcanism, such as hot springs and microseismicity.

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