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Age distribution of detrital monazites in the sandstones from the northern Borneo and its tectonic setting

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Late Cretaceous to Late Eocene turbidite is widely distributed in the northern part of Borneo. It is known as the Rajang Group. Heavy minerals were collected from the four rivers that flow through this stratum. Detrital monazites were analyzed by EPMA to obtain their ages. The monazite age distributions of the four rivers show three main peaks at 200-300 Ma, 400-500 Ma and 1850-1900 Ma, and a weak cluster at 700-1100 Ma. Such age distributions show that the detrital grains were not supplied from Southeast Asia, but from the southern part of China. There is a huge unconformity, called as Sarawak Orogeny, which occurs after deposition of the Rajang Group. The age is the Latest Eocene, close to the opening of the South China Sea which began as early as the Early Oligocene. Hence, it is probable that the Northern Borneo situated at oceanic side of the South China have been moved to its current position during the opening of the South China Sea. There is no clear tectonic event after the opening of the South China Sea between the northern Borneo and western Indonesia Archipelago. Assuming that Borneo and western Indonesia Archipelago were moved at the time of the opening of the South China Sea, the reduced connection between the Indian Ocean and the Pacific Ocean at Miocene and also the Wallace line for fauna and flora may be explained more simply than the recent reconstruction models.

Keywords: monazite, age, Borneo