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Microplankton biostratigraphy in tropical Tertiary deposits of offshore NW Borneo

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The present paper reviews the potential of microplankton as a tool to date and correlate marginal to fully marine Tertiary deposits from offshore NW Borneo, and to assess the depositional environments of these strata.

Traditionally palynological investigations in tropical Tertiary deposits of SE Asia have been focused upon applying the so-called quantitative approach using terrestrial derived pollen and spores. The application of microplankton in correlations was limited and microplankton data was mainly used for calculating the microspore/microplankton ratio, a parameter to determine the relative distance towards the palaeocoast. Despite the vast amount of literature on Tertiary microplankton, information from SE Asia is rather limited. Apart from some taxonomical papers on Paleogene taxa (Matsuoka, 1981-1984), to date only one microplankton zonal scheme has been established in the Neogene

of Sumatra (Brown, 1988), whereas a zonal scheme covering the Eocene-Oligocene from Southeast Kalimantan (Brown, in prep.) is pending.

Although the published information is rather limited, it is suggested that stratigraphical ranges (LADs and FADs) of cosmopolitan Tertiary microplankton taxa may contribute to distinguish the tops of the Pliocene, Middle and Early Miocene, Late Oligocene, "Middle" Oligocene and Eocene in offshore NW Borneo.

From an environmental point of view it becomes increasingly evident that dinoflagellate taxa show clear preferences.

Preliminary investigations in Paleocene/Eocene to Pliocene deposits demonstrate the presence of distinct quantitative changes in successive microplankton assemblages, which may form a frame for establishing a microplankton zonal scheme in offshore NW Borneo.