
The sedimentology and tectonics of the Temburong Formation —single-phase deformation of Early Tertiary deltaic sequences in NW Borneo

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The sedimentology and tectonic deformation of the Temburong Formation in East Brunei are described. Original sedimentary structures are still preserved, particularly in the arenaceous sediments and paleo-environmental indicators, suggesting deposition mostly in a shallow water, subsaline, lower alluvial floodplain environment. The style of deformation varies according to lithology and bed thickness and the tectonism is accompanied by low-grade, sericite metamorphism. Only one period of deformation has occurred and is the result of WNW-ESE compression related probably to the Oligocene rifting and subsequent opening of the South China Sea. The timing of the deformation is narrowed to a short period between the $Te_{1.4}$ and Te_5 Indonesian Letter Stages. No basal conglomerate has been found in the overlying rocks although the unconformity has been recognised as a break in deposition in major platform carbonate sequences in the Melinau Limestone Formation at Melinau, Batu Gading and Keramit as well as the turbiditic limestone at Selidong.

The regional distribution of the Temburong Formation, apparently comprising a predominantly argillaceous succession with little clastic input onshore and platform carbonates accumulating offshore, is discussed in relation to the paleogeography of NW Borneo during the period between two major tectonic events in the post-Eocene and the upper Lower Miocene.