Paper 3

Tectonic styles of the Balingian Province

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The Balingian Province is situated offshore Sarawak. It is bounded to the north by the more stable Central Luconia Province, while to the south lies the Anau-Nyalau fault zone bordering the onshore Tatau Horst. Deformation in Tertiary times is related to periodic movement along major bounding transform faults and the opening of the South China Sea. To the west and east lie the West Balingian Line and West Baram Line respectively. Both these lines are major NW-SE trending lineations, similar to the Lupar Line, and may represent old transform faults.

The Balingian Province can be divided into three sub-provinces, each with different structural trends and timing:

i) The East Balingian sub-province is an area of strong, late Miocene to Pliocene wrench-related deformation with structural axes oriented NE-SW. Individual structures are typically large, high amplitude folds, bounded by reverse faults which converge at depth and can be related to oblique strike-slip movements;

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ii) The SW Balingian sub-province is an area of Oligocene to early Miocene wrench-related deformation of varying intensity. Structural axes trend NW-SE. The dominant fault trend is NE-SW and is characterised by basement faulting in the west and growth faults on the flanks of the Balingian Basin to the southeast;

iii) The NW Balingian sub-province was subjected to several phases of strong deformation from Oligocene to Pliocene and is characterized by *en echelon* NW-SE trending folds with complex fault patterns.

The hardness of the pre-Tertiary basement observed on seismic strongly influences the style of deformation of the overburden. High amplitude reflections are present over basement highs and are associated with gentle deformation of the overburden. Major fold belts are underlain by a weak top basement reflector.