

## **Subsidence nature of a strike-slip related basin: An example learned from the Sarawak Basin**

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The subsidence nature of a strike-slip related basin is the least understood as compared to the rift basin and the basin formed by the lithospheric flexure which is also known as a foreland basin. In brief, the rift basin of Mc Kenzie model has a subsidence profile which is characterised by fast initial subsidence and followed by a slower thermal subsidence. In contrast, the foreland basin is characterised by a slower initial subsidence and followed by rapid subsidence to the end of basin formation.

The subsidence profile of Sarawak Basin was selected for this discussion as the seismic interpretations concluded that the basin was formed by strike-slip tectonism, contradicting to a foreland basin in terms of its tectonic origin; i.e. it was created by lithospheric flexure by the subduction of South China Sea oceanic crust beneath the NW Sarawak continental crust.

The study has been conducted using commercial software, Basin Modelling System Version 4 by Platte River Associates. The result of the study shows that the burial history curves for the wells representative of the Sarawak Basin show many of the

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profiles with early rapid subsidence followed by a later phase where basement subsidence is slower, indicative of rifted style of tectonic origin. These are followed either by a series of later compressional basin inversion or continued with thermal subsidence similar to a rift basin profile.

The evaluation of stretching factors and heat-flow shows a direct relationship throughout the basin which are consistent with the origin of a basin dominated by strike-slip tectonics. The finding of this study helps in understanding the nature of subsidence in the strike-slip related basin which concurrently challenges earlier models for a subduction-related origin for the Sarawak Basin.

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