

**Paper 23****Locations of sedimentary basins in Peninsular Malaysia:  
Speculations on basement control, basin extension and  
hydrocarbon potential****AZHAR HAJI HUSSIN AND S.P. SIVAM**

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The three-fold geology division of Peninsular Malaysia demarcates the major locations of its sedimentary basins. These broad divisions are the depocentres of several superimposed and successor basins.

The Western Basin represent the continental and shallow marine in the west with the slope and basinal environment in the east. Carbonate platforms of various ages occur in different parts of the basins. To the east, lower Paleozoic volcanics and black shales are dominant. Periodic inversion and folding within this basin (e.g. Mid-Devonian) led to breaks in sedimentation and restriction of water circulation.

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The successor basins here are of the following ages:

- 1) Early Paleozoic
- 2) Late Paleozoic-Triassic
- 3) Jurassic-Cretaceous
- 4) Tertiary.

The Central Basin is dominated by three successor basins:

- a) Late Paleozoic-Middle Triassic
- b) Late Triassic-Cretaceous
- c) Tertiary.

The Late Paleozoic-Middle Triassic basin is dominated by carbonate platform and volcanics to the west. To the east, turbidites, black shales, volcanics and some carbonates sited on volcanic highs dominate the lithologies.

The Late Triassic-Cretaceous basin is essentially composed of many small to medium intermontane basins composed of alluvial fan sequence and red beds. There are probable Tertiary continental basins which have not been recognised as they occur on the older Late Triassic-Cretaceous basin.

The Eastern Basin is composed of:

- a) Carboniferous-Triassic
- b) Jurassic-Cretaceous
- c) Tertiary.

The Carboniferous-Triassic basin represent a shelf-slope facies of carbonate, black shale and other clastics. The younger basin are continental in character.

The presence of superimposed basins from Late Paleozoic through Tertiary suggests strong basement control on their locations. The corresponding patterns in the three belts suggest that their tectonic history is quite similar from the Late Paleozoic.

The superimposed basins have produced sequences of alternating source rocks and reservoirs e.g. the Upper Paleozoic-Triassic black shales overlain by the Jurassic-Cretaceous and Tertiary continental reservoirs.

The concept of superimposed basins promotes the possibility of further exploration targets. In the Straits of Malacca where Upper Paleozoic-Triassic, Jurassic-Cretaceous and Tertiary basins are predicted, e.g. offshore Kuala Perak-Kuala Selangor and offshore Muar-Batu Pahat.

This study also open an opportunity to consider the importance of the older sequences as being important exploration targets in the existing offshore fields. Reservoir facies may be present in the deeper areas where porosity has been preserved or secondary porosity created during their diagenetic history.

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