

## **A New, GIS-based Structural and Tectonic Map of SE Asia**

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SE Asia is tectonically one of the most complex areas of the world. This complexity dictates the heterogenic distribution and character of hydrocarbon potential across the region and has consequently led to many different plate modelling hypotheses with differing consequences for exploration.

In this study we have remapped the structural and tectonic framework of SE Asia and its immediately surrounding areas, in order to provide a robust framework with which to pursue a new in-depth investigation of the areas tectonic evolution since the Permian. This has now resulted in a new plate model for SE Asia and a much more robust understanding of the nature of SE Asia tectonics.

The map presented here shows the underlying framework used in the plate modelling. The compilation scale for all elements is 1:2,000,000, with a precision scale of about 1:250,000. The geometry and location of structural and tectonic features is based on an interpretation of the following datasets: gravity and magnetic data and associated derivatives; SRTM3 DEM; Landsat 7 satellite imagery; available seismic and well data; and geological maps. Further information, including feature kinematics, are then compiled from the published literature and stored in a related database. This database includes activation histories, where available, as well as reference sources, kinematics and also geological significance (each feature is assigned a category from 1-4 indicating whether the feature is transcontinental in scale (1), basinal (2), sub-basinal (3) or a kinematically undefined lineament (4)). Every structural element has therefore been examined as part of this study and is not simply a georeferenced element from the published literature, with all the caveats that might entail. Additional mapped information includes the distribution of crustal types across the region, including the extent of deformed and undeformed crust, and a revised map of the COB (continent-ocean boundary) which has explicit affects on the resulting plate models. We have also redefined the geometries of all the plates in the study area, using the detailed structural mapping, which provides a quite different solution to previously published plate models.

The result is a completely new, GIS-based, representation of the structural and tectonic framework of Southeast Asia, which has major implications for hydrocarbon exploration across this very important region.