



SEAPEX Exploration Conference 2005  
Orchard Hotel, Singapore  
5<sup>th</sup> – 7<sup>th</sup> April 2005

#### ABSTRACT

Author(s) : Peter Baillie  
Company Affiliation : TGS-NOPEC Geophysical Company

### **Petroleum Prospectivity of the Indonesian/Vietnam Border Region**

In 2004 TGS-NOPEC, in cooperation with Migas and PetroVietnam, acquired the Heimdall non-exclusive seismic survey, comprising 9,053 line km of new 2D regional data in the border region between Indonesia and Vietnam.

The survey covers parts of the West Natuna, Nam Con Son and East Natuna basins near the Sundaland margin in an area of attenuated continental crust, thinned by South China Sea spreading and Sundaland rifting.

Initial Palaeogene rifting, perhaps wrench related, resulted in accumulation of alluvial and lacustrine sediments. Sea-floor spreading in the South China Sea commenced in mid-Oligocene times, with resultant breakup unconformity in the survey area. Carbonate build-ups commenced during the late Oligocene and continued through to Pliocene times. Late Miocene inversion is common in western parts of the survey area.

The wide geographic distribution of shows and accumulation attests to the widespread presence of effective petroleum systems. Source rocks include Early Oligocene lacustrine sediments and Late Oligocene and Early Miocene coals and coaly shales of lower coastal plain and marginal marine origin. These source rocks are dominantly oil-prone with some gas potential. Depth of burial is the main control on oil vs. gas distribution.

The southeastern (East Natuna) sector of the survey area is more gas prone due to depth of burial and thermal maturity. The north, central and western areas are more oil prone as evidenced by oil accumulations and shows.

Deep Oligocene source rocks may have expelled significant hydrocarbons and become spent prior to trap formation in some areas leaving younger, shallower source rocks to charge structures.

Structural and stratigraphic traps are numerous and include faulted anticlines, faulted inversion anticlines, basement horsts, fault traps, ponded turbidites and carbonate plays.