

## **New Insights Into the Dangerous Grounds Microcontinent, Malaysia**

**Jennifer Greenhalgh<sup>1</sup>, Jo McArdle<sup>1</sup>, and Tad Choi<sup>1</sup>**

<sup>1</sup>PGS, Perth, WA, Australia.

### **ABSTRACT**

The PGS Sabah MC3D survey is part of the first-ever offshore 3D MultiClient survey in Malaysia. The survey was initiated by Petronas and we discuss the insight from the first phase of the larger MultiClient 3D program providing extensive regional coverage in the NW Sabah area. The Dangerous Grounds microcontinent, composed of continental crust, is part of the Greater Palawan Block which rifted off the northern margin of the South China Sea between 32-16 Ma. The southerly-moving Greater Palawan Block then collided with a northwest-facing active subduction system along the NW margin of Borneo at 16 Ma. This collision jammed the subduction trench and terminated spreading in the South China Sea. The Dangerous Grounds microcontinent should thus be considered as a separate geological province from the nearshore fold and thrust belt of NW Sabah. The modern Sabah Trough has been interpreted as a loading-induced foredeep basin, likely underlain by attenuated continental crust of the Greater Palawan Block. Earlier work on dredged samples recovered from the Dangerous Grounds microcontinent has allowed a correlation to be made between this area and the Reed Bank microcontinent (Philippines) where gas was successfully tested from Paleocene – Eocene sandstones (Sampaguita-1A). Acquisition of the Sabah MC3D is being focused on opening up new plays in this frontier area, and new seismic evidence from this first modern 3D seismic from Block ND5 shows the presence of Eocene syn-rift sequences that potentially host source rocks analogous to those previously proven on the Reed Bank. Further potential for new plays in this area include the development of Oligocene-Miocene carbonates on paleo-topographic highs which are proven targets along the northwest margin of Palawan (Philippines). The first 3D images of the subsurface of the Dangerous Ground microcontinent are available following the 2016 acquisition of 5106 sq. km of GeoStreamer® dual-sensor seismic data. High quality imaging of the complex geological frontier province is revealed, providing an opportunity to build an understanding of the regional petroleum system to unlock Sabah's unknown hydrocarbon potential. Drilling in this area, planned for the latter part of 2017, will hopefully prove up this new play system for Malaysia.