ORAL PRESENTATION

New Regional Data and Advances in Understanding of the Stratigraphy, Tectonics, Structure and Prospectivity of the Gulf of Papua (Papua New Guinea)

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Between 2015 and 2017, Searcher Seismic acquired approximately 32,500 km of long-offset PSDM 2D seismic data and reprocessed approximately an additional 13,000 km of previously acquired 2D data in the Gulf of Papua, Papua New Guinea (PNG). The new data has resulted in a significant improvement in subsurface imaging and areal coverage, providing the foundation for a new integrated analysis of the region. In addition, a regional drop core geochemistry and heat flow survey provides important clues regarding the existence of working petroleum systems in the area. The evaluation of these new datasets has improved the current understanding of the stratigraphy, plate tectonics, local structure and petroleum prospectivity of the Gulf of Papua.

New seismic allowed identification of several depositional packages that are often bounded by regional unconformities related to the tectonic development of the area. Seismic and shipborne gravity/magnetics analyses allowed a confident identification of the following events/packages:

1. Moho event, allowing estimation of the crustal thickness and differentiation between oceanic and continental crust and calibration of the heat flow measurements.

2. Palaeozoic, severely folded succession, analogous to eastern Australia accretionary terrains.

3. Permian, analogous to the Bowen Basin in Queensland, Australia.

4. Triassic to Jurassic succession, supported by the existence of the Jurassic seep identified by the Davaria geochemical survey.

5. Presence of previously unidentified block faulted highs with Miocene reefs and carbonate platform build-ups.

6. Pliocene and younger sandstone basin floor fans.

7. Extension of the compressional front into the deep-water Gulf of Papua.

These observations have been integrated into an updated plate tectonic model that predicts widespread deposition of the Permian and Triassic to Tertiary source rocks estimated to be often within the hydrocarbon generative window.