

# Capel and Faust basins — integrated geoscientific assessment of Australia's remote offshore eastern frontier

## Abstract

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The paper discusses the results from the GA-302 2D seismic survey and GA-2436 (RV *Tangaroa*) marine reconnaissance survey over the Capel and Faust basins, northern Tasman Sea. The integration of seismic, potential field and bathymetric data sets in 3D space at an early stage in the project workflow has assisted in the visualisation of the basin architecture, the interpolation of data between the seismic lines, and the iterative refinement of interpretations. The data sets confirm the presence of multiple depocentres, as previously interpreted from satellite gravity data, with a maximum sediment thickness of 5–7 km. Preliminary interpretation of the seismic data has identified two predominantly Cretaceous syn-rift and two Upper Cretaceous to Neogene sag megasequences overlying a heterogeneous pre-rift basement. The comparison of seismic facies and tectonostratigraphic history with offshore New Zealand and eastern Australian basins suggests the presence of possible Jurassic to Upper Cretaceous coaly and lacustrine source rocks in the pre- and syn-rift, and fluvio-deltaic to shallow marine reservoir rocks in the syn-rift to early post-rift successions. Preliminary 1D basin modelling suggests that the deeper depocentres of the Capel and Faust basins are within the oil and gas windows. Large potential stratigraphic and structural traps are also present.