



Southwest Margin Surveys

Geoscience Australia's Southwest Margin Project aims to develop an improved understanding of the petroleum prospectivity and resource potential of offshore sedimentary basins located on the continental margin extending from Cape Range to Cape Leeuwin.

Primary areas of interest include the Mentelle and northern Perth Basins. Other areas of interest include the southern Exmouth Sub-basin (Northern Carnarvon Basin), the Southern Carnarvon Basin and the Wallaby Plateau. New exploration opportunities supported by integrated basin analysis and petroleum system studies will be delivered via acreage release. Basin studies are being underpinned by new data sets recently acquired as part of the Australian Government's Offshore Energy Security Program.

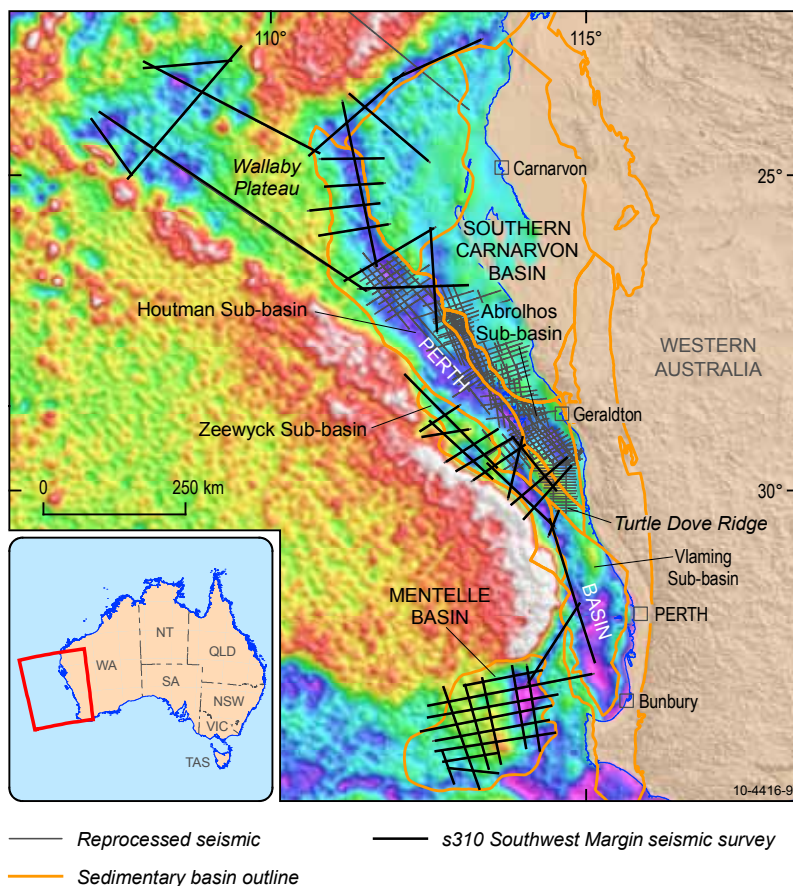


Figure 1. Southwest Margin seismic survey lines, reprocessed seismic and sedimentary basin outlines overlain on a residual gravity image.

NEW SURVEYS

Between October 2008 and February 2009, Geoscience Australia undertook two major surveys to investigate the resource potential of deep-water frontier basin areas on the southwest margin. The data obtained includes:

- 2D seismic reflection,
- bathymetry,
- geological and biota samples, and
- gravity and magnetic data.

SOUTHWEST AUSTRALIAN MARGIN REGIONAL MARINE 2D SEISMIC SURVEY

- Areas covered by the new seismic data included the Mentelle Basin and northern Perth Basin (Zeewyck and Houtman Sub-basins). Regional seismic lines were also acquired to infill data gaps in the Southern Carnarvon Basin and to explore the Wallaby Plateau.
- The seismic survey acquired 7300 kilometres of industry-standard 2D seismic reflection data.
- Key acquisition parameters included an 8 kilometre solid streamer of 12.5 metre groups (giving 106-fold), 4290 cubic inch source array and 12 second record length.
- As part of this survey, gravity and magnetic data were also acquired.
- Survey data has been processed and is available from Geoscience Australia at the cost of transfer.

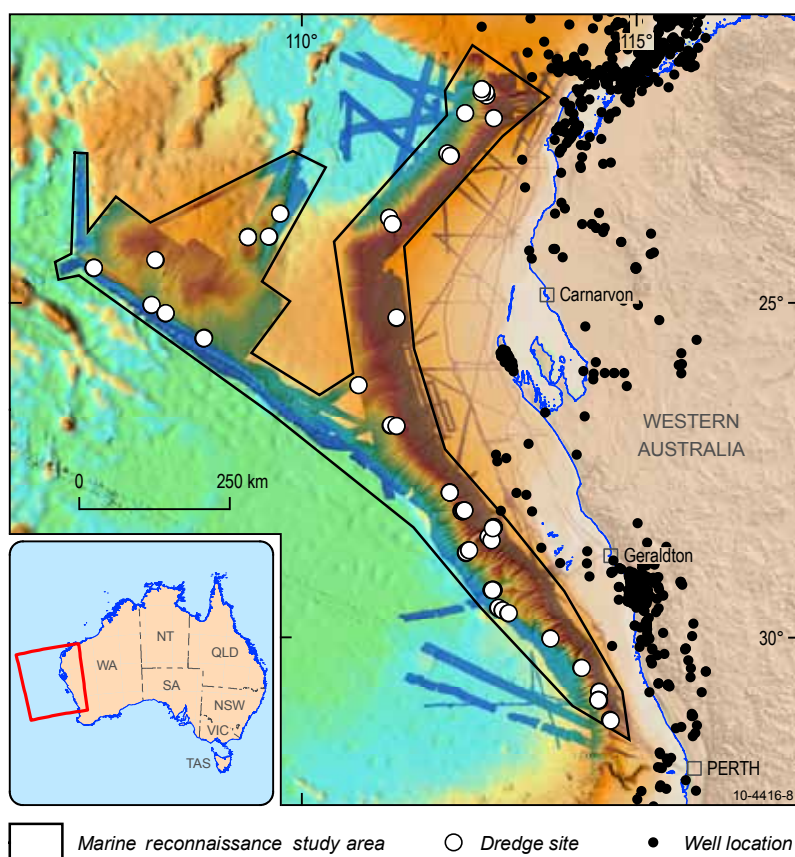


Figure 2. Marine reconnaissance survey sampling sites overlying new bathymetry data.

REPROCESSED SEISMIC DATA

In addition to the new seismic reflection data acquired as part of the Offshore Energy Security Program, Geoscience Australia has reprocessed selected open file seismic lines in the Northern Perth Basin to modern industry standards. The reprocessing includes 11 700 line kilometres of 2D seismic data. This provides data ties to most wells in the Abrolhos and Houtman Sub-basins. The reprocessed seismic data has been used to build a geological framework for previously explored parts of the northern Perth Basin, which is helping to constrain the geology and petroleum potential of the frontier areas.

SOUTHWEST MARGIN MARINE RECONNAISSANCE SURVEY

- The marine reconnaissance survey investigated the geology and marine environment of the northern Perth and Southern Carnarvon Basins and the Wallaby Plateau.
- The survey acquired 230 000 square kilometres of new swath bathymetry data and 25 000 line kilometres of gravity, magnetics, and sub-bottom profiler data to help resolve the extent and depth to basement in major sedimentary depocentres.
- 190 rock samples from 53 dredge sites were acquired over the continental slope to help determine the ages, lithologies and source potential of frontier basin areas, while 28 sediment grab samples from the seafloor have been used to document marine biota and habitats.
- Geochemical, palynological and microfossil analysis results from the rock samples are contributing to Geoscience Australia's hydrocarbon prospectivity assessment of frontier areas along the Southwest Margin.
- Preliminary results of the marine reconnaissance survey are available in Geoscience Australia Record 2009/38 "Frontier basins of the West Australian continental margin: post-survey report of marine reconnaissance and geological sampling survey GA 2476".



FOR FURTHER INFORMATION:

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