



Voyage SS12-2008

Submarine landslides and mass sedimentation model for the SE Australian margin

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Contribution to Australia's national benefit:

Producing the first regional seabed map of the Australian continental margin off northern NSW and southern Queensland between 100-3500 m water depth, this voyage discovered a large marginal plateau of continental crust, the Nerang Plateau, flanked on either side by a continental margin experiencing extensive mass movement. Seven major submarine canyons were discovered surrounded by two extensive regions of numerous submarine landslides ranging up to 10 km³ in volume and larger regions of up to 100 km³ volume identified as potential future hazards. Sediment cores in these landslides indicated that the events that caused the landslides were relatively recent and likely less than 20,000 years old with some as young as 6,000 years. Geological sampling indicated that the continental margin in this region is made up largely of sedimentary basins, likely southeastward extensions of the Maryborough Basin and northeastward extensions of the Clarence-Moreton Basin. These results contribute to the national benefit of Australia by making Australia safer due to documentation of potential geohazards, by mapping deep ocean areas of the marine jurisdiction, and by extending identification and understanding of Australia's potential mineral resources into the offshore region.

As a result of this voyage:

1. We have a better understanding of the morphology and sediments, the submarine geohazards, and the sedimentary basin distribution of the SE Australian margin.
2. We have found and mapped 9 submarine canyons, two sedimentary basins, a large number of submarine landslides, cemented lowstand shorelines, and a submarine plateau. We have also found that large landslides are present on this margin, and that they have occurred in recent geological time.

Addressing National Research Priorities

An Environmentally Sustainable Australia

- Goal 6: Developing deep earth resources

Safeguarding Australia

- Goal 1: Critical infrastructure

Itinerary

Departed Newcastle 5 November 2008
Arrived Sydney 21 November 2008

> Voyage track SS12-2008

