FALVEY, D. A., Bureau of Mineral Resources, Canberra, Australia, K. HINZ, Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover, Federal Republic of Germany, J. B. WILLCOX, N. F. EXON, P. A. SYMONDS, and P. E. WILLIAMSON, Bureau of Mineral Resources, Canberra, Australia

Prospective Frontier Basins off Eastern Australia

Eleven thousand kilometers of high-quality multichannel seismic reflection data have been gathered in four poorly known, but prospective areas off eastern Australia. The data were collected by the Bureau of Mineral Resources (BMR) using R/V *Rig Seismic* and by the Bundesanstalt für Geowissenschaften und Rohstoffe (BGR) using F. S. *Sonne*. The four areas are the Otway basin off Victoria and South Australia, and the west Tasmanian margin, both partly explored, and the unexplored Lord Howe Rise and Queensland Plateau.

The Otway basin has an area of 100,000 km^2, more than half of which is in depths exceeding 500 m. Its Cretaceous and Cenozoic sedimentary sequence is up to 10,000 m thick and is cut by large coast-parallel normal faults. The oldest marine strata are Cenomanian. The basinal area off west Tasmania covers 40,000 km^2, two-thirds of it in offshelf depths. It contains up to 6,000 m of Cretaceous and Cenozoic sequences similar to those of the Otway basin. Both Otway and west Tasmanian areas formed during the breakup of Australia and Antarctica, and exhibit complex structuring due to wrenching imposed on the simpler extensional features.

The Lord Howe Rise is a ribbon of continent off eastern Australia, about 2,000 km long and 400 km wide. Much of its crest lies in water depths of 750-1,200 m. Up to 4,500 m of Mesozoic and Cenozoic sequences has been identified, and extensive faulting, related to the formation of the Tasman Sea, has formed rift basins and horst and graben areas. Simple extension was apparently dominant in the south, and oblique extension in the north.

The Queensland Plateau covers 200,000 km^2, half of which is in water shallower than 1,000 m. The plateau behaved as a stable block during and after the Paleogene spreading episode, which formed the Coral Sea to the northeast. About 1,000 m of latest Cretaceous and Cenozoic sequences are present above a planated surface on the plateau, and up to 5,000 m in the flanking Queensland and Townsville Troughs to the southwest. The sequence beneath the planated surface is believed to contain Cretaceous rift-fill sediments in places.