

Crustal structure and isostatic equilibrium derived from gravity data by Icebreaker SHIRASE

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Southeast Indian Ridge, boundary between Antarctic and Indo-Australian plates is characterised by an asymmetrical structure as derived from topography, gravity and geomagnetic data. Geophysical data obtained by Icebreaker SHIRASE during the transit of the 28-45th Japanese Antarctic Research Expedition were used to estimate the average depth of discontinuities below the ridge and its isostatic equilibrium. The result suggests that the Moho is located 17-28km below the sea surface at 110E, whereas 9km at 100E. Considering also the difference in topographic features of the ridge crest between the two area, the latter is characterised by thick igneous crust due to high magmatic activity and the former by magma-starved tectonic extension.