

SEISMIC STRATIGRAPHY OF CENOZOIC DEPOSITS IN DRAKE PASSAGE AND SCOTIA SEA: TECTONIC AND PALEOCEANOGRAPHIC IMPLICATIONS

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Swath bathymetry data, multichannel seismic profiles and magnetic anomalies recently acquired during the SCAN 2004 cruise are analyzed in order to establish the Cenozoic evolution of the Drake Passage and western Scotia Sea. We identify five main seismic units, that are bounded by high-amplitude continuous reflectors named **a to d** from top to bottom. The deposits show a variety of sediment drifts that resulted from the interplay between the flows of the Weddell Sea Bottom Water and from the influence of the Antarctic Circumpolar Current. A major paleoceanographic event was recorded by Reflector **c** (~12.1-12.6 Ma), which marks the connection between the Scotia Sea and the Weddell Sea after the opening of Jane Basin. Reflector **a** (~3.5-3.8 Ma) also marks a major event that coincides with the end of spreading in the Phoenix-Antarctic ridge. The older magnetic anomaly previously reported in the Drake Passage is chron C10, whereas our recently acquired magnetic profiles in the western Scotia Sea show up to chron C12. The oceanic crust in the southwestern Scotia Sea is also affected by thrusting below the margin of the South Scotia Ridge, and a portion of the oldest crust was moreover consumed by the subduction process. These data bear evidences for an earlier opening of a full circum-Antarctic gateway through Drake Passage than previously postulated.

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