

Calcareous nannofossils from IODP Expedition 374 to the Ross Sea, Antarctica

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IODP Expedition 374 cored Neogene sequences at five sites on the Ross Sea continental shelf, slope and rise in order to examine ice-sheet advance and retreat. This expedition specifically targeted intervals of past warmer-than-present climate, including the Miocene Climatic Optimum, mid-Pliocene Warm Period and Pleistocene super interglacials, in order to get a better understanding of how ice sheets respond to warmer temperatures. In particular, the marine-based, West Antarctic ice sheet is particularly vulnerable to increasing ocean temperatures, but a lack of proximal records limits the ability of ice-sheet modellers to use palaeoclimate records to constrain potential future retreat. Expedition 374 cored two sites on the continental shelf, one on the outer continental shelf and two on the banks of Hillary Canyon on the continental slope and rise. Although calcareous nannofossils are sparse in the Antarctic Neogene and Quaternary assemblages, their presence can be used as a palaeoenvironmental indicator of past warm periods. Shipboard examination of select samples from several sites cored during Expedition 374 revealed calcareous nannofossils were present in some discrete intervals. In particular, a sample from continental slope Site U1525 yielded a sparse assemblage of moderately-preserved calcareous nannofossils that include the genera *Reticulofenestra*, *Calcidiscus* and *Coccolithus*, indicative of the Neogene. Targeted analyses of select intervals from Sites U1523 (outer continental shelf) and U1524/U1525 (continental rise/slope) will provide a snapshot of warmer-than-present intervals when conditions were conducive for the presence of coccolithophores in the Ross Sea region of the Antarctic.