



Oligocene environmental changes on the Wilkes Land margin in response to a developing East Antarctic ice sheet.

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IODP Expedition 318 drilled several sites on the Wilkes Land margin of East Antarctica in Jan.–Feb. 2010. The principle objective of the cruise was to obtain a better understanding of the Cenozoic cryospheric evolution of Antarctica, in conjunction with the dating of major regional seismic unconformities WL-U3 thru U8. Unconformity WL-U3 was suggested to be related to the inception of Antarctic glaciation during the Eocene-Oligocene Transition (~34 Ma).

Changes in biotic assemblages distinctly denote an ecological transition from warm, Eocene ice-free ‘greenhouse’ conditions to colder, highly productive, Oligocene ‘icehouse’ conditions, more akin to the modern shelf environment of Antarctica. Preliminary dinoflagellate and TEX_{86} results will be discussed. In addition, our paleoecological interpretations provide constraints for on-going geophysical studies aimed at modelling changes in relative sea level in response to East Antarctic glaciation and ice-sheet arrival at the Wilkes Land margin.