Geophysical Research Abstracts
Vol. 14, EGU2012-12353, 2012
EGU General Assembly 2012

Glaciation, orbital forcing and carbon cycle changes at the Oligocene/Miocene boundary

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An extreme, transient expansion of the Antarctic ice sheet at the Oligocene-Miocene boundary (termed the Mi-1 event) marks an important transition in Cenozoic climate. Cyclostratigraphic studies of previous marine records have attributed the Mi-1 event to a node of low amplitude obliquity and eccentricity. However, the occurrence of less extreme Miocene glaciations during different orbital configurations, suggests the contribution of other factors. Current understanding of the mechanisms operating between external forcing and climate response, especially the role of the carbon cycle, is limited. Here, we present part of a new sub-precession-resolution benthic foraminifer stable carbon and oxygen isotope record from Integrated Ocean Drilling Program Expedition 320 (Site 1334) in the eastern equatorial Pacific Ocean. We resolve small scale oxygen isotope excursions and reconstruct Antarctic ice sheet evolution in an effort to improve our understanding of this pivotal boundary.