



Microfossil response to the PETM at DSDP Site 401 (eastern North Atlantic)

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The Paleocene–Eocene Thermal Maximum (PETM; 55.8 Ma) is the most prominent of a number of global transient warming events during the Paleocene and Eocene epochs. This so-called hyperthermal has been studied in numerous sites with deep and shallow marine sediments as well as in terrestrial archives. Nearly all of these sections show indications of substantial warming based on temperature-sensitive geochemical proxies and a pronounced negative carbon isotope excursion accompanied by biotic changes. However, only few complete deep-sea records exist from the North Atlantic region. In the Bay of Biscay at DSDP Site 401 the PETM is well developed and consists of a fairly thick sequence of clay-rich sediments providing well preserved calcareous microfossils. So far foraminiferal calcite has been used to compile high resolution carbon and oxygen isotope records for the sea-floor and the surface ocean from this site. Carbon isotopes represent the typical asymmetric, negative anomaly of about 2 per mil; oxygen isotope data suggest high rates of freshwater supply into the Bay of Biscay resulting in enhanced water column stratification during both the core of the carbon isotope excursion and the recovery phase.

In this contribution we combine detailed assemblage records of planktic and benthic foraminifera as well as calcareous nannofossils studied from the same sample material in order to reconstruct the biotic response to this severe warming event. This allows us to detect differences and similarities between these microfossil groups that represent different life habitats and trophic strategies.