A North Atlantic sea surface temperature reconstruction for the Middle Eocene Climatic Optimum

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The Middle Eocene Climatic Optimum (MECO) represents a ~500 kyr episode of ocean and atmosphere warming that occurred ~40 Myr ago, superimposed on the long-term Eocene cooling trend. While sea surface warming during the MECO has been recorded for different ocean basins, the regional expression of warming in the North Atlantic remains unclear. Here, we present the first results of a multiproxy sea surface temperature record of the MECO from the Newfoundland Drifts at IODP Sites U1408 and U1410, based on stable oxygen isotope ratios, Mg/Ca ratios and clumped isotope compositions of planktonic foraminifera, as well as biomarker paleothermometry. By integrating high-resolution records of these four independent temperature proxies, we aim to unravel the amplitude and character of sea surface warming and cooling during the MECO in the North Atlantic – and therefore evaluate the global extent of the event.