



## **Temperature and Productivity variability on the southwestern Portuguese Margin during the initial phase of the Mid-Pleistocene Transition**

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The most accentuated global climate event of the Quaternary period was the transition from 41 to 100 ky climatic cycles, known as the Mid-Pleistocene transition (MPT). The exact timing and mechanisms behind this transition are still a matter of debate. The MPT was characterized by a global gradual cooling with an increase in ice sheet sizes and severity of glaciations in parallel with the emergence of the 100 ky cyclicity at 1250 ky, and the full establishment of maximum glaciations and 100 ky cycles around 700 ky. In this sense, there are many studies reconstructing sea surface temperature available for the MPT in the North Atlantic but few paleoceanographic reconstructions are focused on productivity. The Portuguese margin is considered a key paleoceanographic region since it records the climatic signal from the high latitudes of both hemispheres (Greenland and Antarctica). The biomarker's record of sea surface temperature (SST) from the Iberian Margin extends back until Marine Isotope Stage (MIS) 27 (1017 ky), but the planktonic foraminifera assemblages are available only back to MIS 22 (900 ky). As such, longer records are needed to obtain an accurate understanding of the hydrography and productivity variability of older periods in the mid-latitudes of the North Atlantic and their connection with global climate variability. Here we present the first high resolution SST and export productivity (P<sub>exp</sub>) variations, determined from planktonic foraminifera assemblages, for the initial phase of the MPT, specifically between MIS 37 and MIS 35 (1250–1140 ky) in the IODP Site U1385 located off the SW Portuguese margin. For a broader perspective, these data are combined with benthic and planktonic foraminifera stable isotope records, XRF-derived element ratios, and total organic carbon data from this and nearby sites. Preliminary results show relatively cold and productive conditions (11°C and 82gC/m<sup>2</sup>/y) during the MIS 36/35 transition. During interglacial MIS 35 (1163-1190 ky), SST and P<sub>exp</sub> reached values between 16-18°C and 116-164gC/m<sup>2</sup>/y, respectively. During the cold event at the inception of glacial MIS 34 (1152 ky) SST dropped to 6°C and P<sub>exp</sub> 63gC/m<sup>2</sup>/y, only to rise again to 22°C SST and 50gC/m<sup>2</sup>/y P<sub>exp</sub> at 1147ky, i.e. during the subsequent warmer period. These fluctuations on both SST and P<sub>exp</sub> likely reflect hydrographic front movements occurring during the MPT.