North Atlantic Deep Water Masses Throughout the Mid-Pleistocene Transition: Changes at Site U1587 on the Iberian Margin

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Deep ocean circulation during the Mid-Pleistocene Transition (MPT) is a subject of significant interest in paleoceanography. The MPT is characterized by a shift from dominant 41,000-year to 100,000-year glacial-interglacial cycles, potentially associated with variations in deep ocean circulation in the Atlantic Ocean. Benthic foraminifera, specifically *Cibicidoides wuellerstorfi* and *Uvigerina peregrina*, along with carbon-13 ($\delta^{13}C$) and oxygen-18 ($\delta^{18}O$) isotope analyses, have been studied to investigate changes in deep-water masses and ocean circulation within this period. Here, we present records of the abundance and stable isotopic composition of *C. wuellerstorfi* and *U. peregrina* from International Ocean Discovery Program (IODP) Expedition 397 Site U1587 (37.58˚N, 10.36˚W, 3480 meters below sea level [mbsl]) to reconstruct changes in deep-water circulation patterns at the Iberian Margin during the MPT. Additionally, data from Site U1587 were compared to data from Site U1385 (37.57˚N, 10.13˚W, 2578 mbsl) to determine whether the boundary between the Antarctic Bottom Water (AABW) and North Atlantic Deep Water (NADW) has changed over time, and if deep waters along the Iberian Margin were more southern- or northern-sourced. Carbon and oxygen isotopes in foraminiferal shells offer additional information about past environmental conditions. $\delta^{13}C$ values reflect changes in the carbon cycle and serve as a water mass tracer, and $\delta^{18}O$ values provide insights into changes in global ice volume, the isotopic composition of seawater, and water temperature. The preliminary results of *C. wuellerstorfi* and *U. peregrina* from Site U1587 resemble records from the shallower Site U1385, which indicates that significant changes in deep ocean circulation occurred over a wide depth-range at the Iberian Margin throughout the MPT. Additionally, glacial periods across this interval are associated with increasingly negative benthic $\delta^{13}C$ values, which may be due to the “MPT-AMOC Crisis”, when a weakening of the Atlantic Meridional Overturning Circulation (AMOC) took place. Further data will allow for a better understanding of deep ocean circulation and provide valuable knowledge for understanding the broader climatic and oceanographic changes during this critical period in Earth's history.