

How Did Deep Ocean Circulation Change In the Eastern Atlantic Basin Across Ice Age Cycles?

Naomi Bonilla^{1,2}, Apollonia Arellano², Celeste Pallone², Jerry McManus²

¹Hudson County Community College, ²Lamont-Doherty Earth Observatory of Columbia University

The North Atlantic Deep Ocean is a critical region for understanding past climate variability. This study investigates the influence of ocean circulation on climate change during the Pleistocene by analyzing oxygen and carbon isotope compositions of benthic foraminifera from the Iberian Margin. Century-scale resolution data from 100 sediment samples reveal changes in seawater temperature and ice volume over the last 40,000 years. Our results indicate that the mixing ratio between North Atlantic Deep Water (NADW) and Antarctic Bottom Water (AABW) varied significantly through time, with NADW dominance during interglacial periods and AABW prevalence during glacial intervals. These findings provide crucial insights into the dynamic interplay between climate change and deep ocean circulation in the past, informing our understanding of future climate scenarios.