



A 4500-year record of Sea Surface Temperatures at decadal time-scale in the North Atlantic core

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Paleo-observations provide crucial data for testing numerical climate models at characteristic time scales of the Meridional Overturning Circulation (MOC), i.e. decadal to centennial. Here, we present a unique Sea Surface Temperature (SSTs) reconstruction obtained at 4-5 year temporal resolution using alkenones, from a marine core located in the polar front, off North Iceland (MD99-2275 core; 66°33N; 17°42W, 440m water depth). Spectral analyses identify strong variability at bidecadal (20-25 years) and multidecadal (50-150 years) time-scales. The 70-year SST record, generated from the nearby box-core, thus covering the instrumental period, suggests that bidecadal fluctuations may be NAO-driven. Comparison of the MD99-2275 record with the distant Cariaco Basin titanium sediment record, in the tropical Atlantic, indicates major shifts of the ITCZ contemporaneous to large variations of the paleomagnetic parameters and multi-decadal SST oscillations. We speculate that these oscillations are induced by increased ENSO.