



## **Decadal variability of sea surface temperatures off North Iceland over the last 3200 years**

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Understanding the processes involved in ocean circulation change is critical for climate predictions and climate impact analyses. However, the shortness of observational time series has limited investigation of ocean variability on long time spans. Paleo-observations provide crucial data for testing climate models over relevant time scales (decadal to century). Here we used alkenone paleothermometry to reconstruct sea surface temperature (SSTs) at unprecedented high temporal resolution (2 to 5 years), in a marine core located in the polar front, off North Iceland (MD99-2275 core ; 66°33N; 17°42W, 440m water depth). Our results show that large multi-decadal SST oscillations have occurred over the past 3 millennia and suggest that these fluctuations may result from enhanced heat transport of warm waters of the NAD through the Denmark Strait. Comparison of our results with the distant Cariaco Basin titanium sediment record, in the tropical Atlantic, suggests that the reconstructed variability at multi-decadal scale involve basin-wide change of the ocean circulation.