



Ocean stratification versus vertical mixing in the north Atlantic Ocean during the last glacial

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The fluctuating cover of sea ice and melting glaciers in the North Atlantic region during the most recent three Marine Isotopic Stages (MIS) has been well documented. The consequences of this, either seasonal or perennial ice cover, on oceanographic conditions (i.e. mixing or stratification) has yet to be fully unravelled. Within the scope of the Darwin Center project Sensing Seasonality we shed light on the effects of melting sea-ice versus land-ice on the ocean conditions during short term (i.e. Heinrich Events) and long term (LGM) cold events. Core T88-3P is strategically located just north of the IRD belt (56°43.8N; 27°79.7W; 2819m water depth). The stable isotope data of different species of planktonic and benthic foraminifera reflect the degree of water mass stratification. As we apply single specimen foraminiferal isotope analysis we are able to extract the full seasonal range (i.e. annual mean, minima and maxima) of sea surface temperatures. Combining stable isotopes with faunal abundance, IRD provenance and other geochemical proxies (e.g. XRF data) the state of the sub-surface ocean system during Heinrich and Dansgaard/Oeschger Events within the last glacial can be reconstructed.