



Climatic states of the polar and sub-polar regions during the MIS11 and 7 interglacial periods.

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One of the key remaining challenges in the context of future climate change is to correctly assess the evolution of the sea-level. While all model studies agree in predicting a sea-level rise in response to global warming, its amplitude remains uncertain, essentially because of the little-known contribution of the polar ice-sheets. By combining palaeoclimatic and model-output data, the UK iGLASS project aims to better understand the processes involved in ice-sheet evolution and therefore improve future sea-level scenarios. In this framework, we here present an overview of the climatic states of the polar and sub-polar regions during previous interglacial periods, specifically MIS 11 (from ~390 to ~430 ky BP) and MIS 7 (from ~195 to ~245 ky BP), using a data-synthesis compiling all available climatic records obtained from ice cores, terrestrial and marine sediments.

Because its orbital configuration and greenhouse gas concentrations are close to the current ones, the MIS 11 has been widely studied over recent decades and has in particular benefited from quite exhaustive syntheses (e.g. Milker et al., 2013). The originality of our approach here relies on separately synchronizing records from the Northern and Southern Hemispheres. This allows us to look at the spatial and temporal distribution of the temperature patterns at the surface, but also at the deep ocean circulation changes and their spreading in the different basins. Likewise, the same approach is applied to the less documented MIS7, which is characterized by 3 successive peaks meeting interglacial conditions. We especially focus on comparing the intensity of the three peaks between both Hemispheres and on highlighting the differences in terms of climatic features between a relatively smoothed and long interglacial interval and short and successive abrupt ones.