



## **Late Pliocene millennial-scale climate variability in the northern North Atlantic over the onset of northern hemisphere glaciation**

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The onset of northern hemisphere glaciation (NHG) at 2.82-2.95 Ma was linked to an intensification of thermohaline circulation in the North Atlantic (Bartoli et al., 2005) and marked the start of Quaternary-style glaciations. Sediments recovered at ODP Site 984 on the Reykjanes Ridge (61°N, 24°W) provided multicentennial-scale records of Late Pliocene climate change over 2.5-3.1 Ma. Short-term climate variations were compared prior and after the onset of continent-wide glaciation. In particular, we investigated whether Dansgaard-Oeschger (DO) cycles that may be triggered by continental ice breakouts (Ganopolski Rahmstorf, 2001) were a characteristic feature of Pliocene glacial stages after the onset of NHG. On the long term (3.1-2.5 Ma), planktic and benthic  $\delta^{18}\text{O}$ , sea surface temperature, and magnetic susceptibility records display periodicities at around 1100, 950 and 450 yr that may resemble solar cycles characteristic of the Holocene climate changes (Sarnthein et al., 2003). During selected interglacial and glacial stages prior to NHG climate variability also resembled that of the Holocene and/or the mid-Pliocene warm period (Draut et al., 2003). In contrast, DO-like periodicities of 1470, 2900, and 4400 yr indeed occurred in planktic  $\delta^{18}\text{O}$ , SST and magnetic susceptibility records of glacial stages after the onset of NHG (i. e., G14, G6 and 104). These results would confirm a causal link between DO cycles and ice breakouts. First high-resolution planktic  $\delta^{18}\text{O}$  and SST records of glacial stages after the onset of NHG from IODP Site 1307 (Labrador Sea) will be discussed.