



## **Glacial-interglacial variability change: a view beyond ice cores**

Kira Rehfeld (1), Thomas Münch (1,2), Sze Ling Ho (1), and Thomas Laepple (1)

(1) Helmholtz Junior Research Group ECUS, Alfred-Wegener Institut Helmholtz-Zentrum für Polar- und Meeresforschung, Potsdam, Germany (krehfeld@awi.de), (2) Department of Physics, Universität Potsdam, Germany

The last Glacial was characterized by a highly variable climate, including abrupt changes such as Heinrich- and Dansgaard-Oeschger events. By contrast, the warm Holocene time period appears as relatively stable. This variability change is often discussed based on data from polar ice cores, particularly from Greenland. Here, we contrast the polar ice-core based variability change with the variability change as recorded by a global compilation of marine and terrestrial proxy records.

Accounting for uneven sampling in time and space, we develop an understanding of proxy signal-to-noise ratios which allows insight into proxy-specific biases concerning the recording of climate variability. Globally, we find climate around the Last Glacial Maximum five times more variable than during the Holocene. This variability is expressed in particular by the polar ice cores: We find a stronger polar amplification of climate variability during the Glacial than during the warm Holocene.

Our results indicate that the view of an extremely variable Glacial contrasting with a quiet Holocene, given by central Greenland ice core isotope ratios, may underestimate the actual variability of the present warm Interglacial on the global scale.