



Simulating the Dansgaard-Oeschger Continuum - mechanisms, patterns, timing

Axel Timmermann (1), Laurie Menviel (2), and Tobias Friedrich (1)

(1) University of Hawai'i, IPRC, SOEST, Honolulu, United States (axel@hawaii.edu), (2) CCRC, University of New South Wales, Australia

This presentation will discuss new insights into dynamics of Dansgaard-Oeschger variability by analyzing a recently performed transient global 3-dimensional intermediate complexity Earth system model hindcast simulation which covers the period 50 ka B.P. to 30 ka B.P. The model was forced by time-varying external boundary conditions (greenhouse gases, orbital forcing, and ice sheet orography and albedo) and anomalous North Atlantic freshwater fluxes, which mimic the effects of changing Northern Hemisphere ice-volume on millennial timescales. Together these forcing generate a realistic global climate trajectory, as will be demonstrated by an extensive model/paleo data comparison. The results presented in this talk are consistent with the notion that variations in ice sheet calving and subsequent changes of the Atlantic Meridional Overturning Circulation were the main drivers for the continuum of glacial millennial-scale variability (Dansgaard-Oeschger and Heinrich events) seen in paleorecords across the globe.