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A transient simulation of the last Deglaciation (21k – 9k BP) using a fully coupled GCM.

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Preliminary results from a transient simulation of the global climate during the last deglaciation (21k – 9k BP) are presented. The simulations are conducted with the FAMOUS atmosphere-ocean general circulation model (AOGCM), a lower resolution / faster version of HadCM3. The model is initialised with glacial geography (land masses extent and topography), bathymetry and continental ice-sheet configuration, which then are updated every 1kyrs based on the ICE-5g reconstructions. It is forced with realistic orbital parameters, greenhouse gases concentrations (CO2, CH4, N20) and freshwater inputs. Timing, magnitude and location of these freshwater inputs are estimated by combining information from marine and terrestrial records and interpretation of the sea-level change.

Five parallel deglaciation experiments are conducted where the combined impact of these forcing (geography, orbital parameters, greenhouse gases concentrations and freshwater input) is analysed. The results suggest that the CO2 concentrations and the ice-sheet extent dominate the overall long-term warming during the last deglaciation, while the timing and magnitude of the meltwater pulses are crucial in simulating the rapid climatic events (Heinrich 1, Bolling-Allerod (BA) warming, YD).