



Simulation of Termination II

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We present simulations of the glacial to interglacial transition Termination II utilizing the Earth system model of intermediate complexity CLIMBER-2. In the applied version, CLIMBER-2 incorporates the atmosphere, terrestrial vegetation, ocean, sea and inland ice. The latter is treated with the polythermal ice-sheet model SICOPOLIS.

Termination II is an intriguing subject, because a couple of palaeo data suggested a too early retreat of the ice sheets compared to the rise of boreal summer insolation during that time. These data seemingly are in conflict with the orbital theory of ice ages by Milutin Milankovich and, to the contrary, supported another theory by Mark Cane, who placed the pacemaker of the ice ages into the tropics.

Here, it is aimed to investigate the role of different mechanisms for the glacial terminations. These mechanisms are the insolation, the rise in atmospheric CO₂, Heinrich events and Dansgaard-Oeschger oscillations, the change in terrestrial vegetation cover and SSTs. In particular, we compare the variation of climatological and glaciological quantities during Terminations I with those during Termination II.

Overall, our results cannot support the idea that the cause of the ice ages is located in the tropics. Indeed, our findings are rather strong evidence that several mechanism in concert, where the orbital insolation plays the major role, are responsible for the glacial terminations including Termination II.