

Modelling the last Glacial Inception with CLIMBER

**Reinhard Calov, Andrey Ganopolski
and Martin Claussen**

Potsdam Institute for Climate Impact Research

PO Box 60 12 03

D-14412 Potsdam

Germany



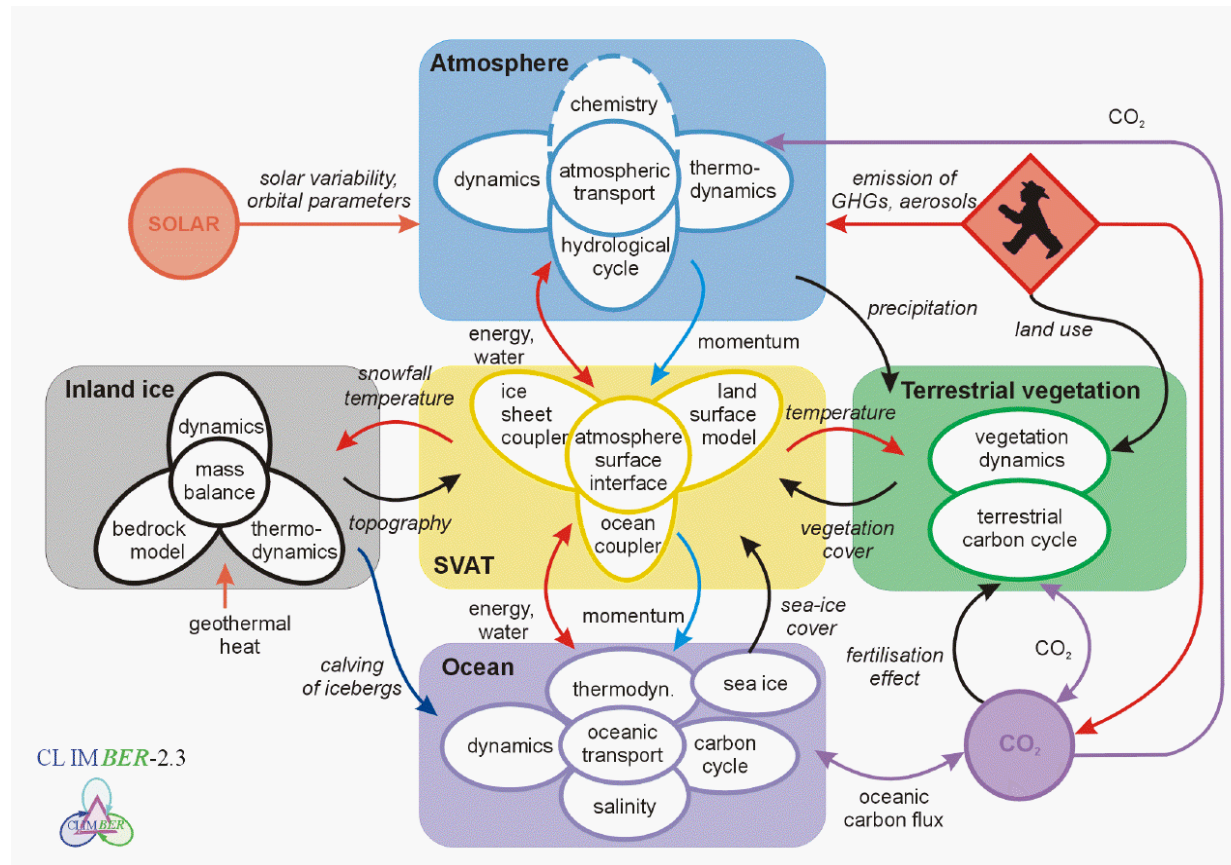
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- The Model
- The Glacial Inception
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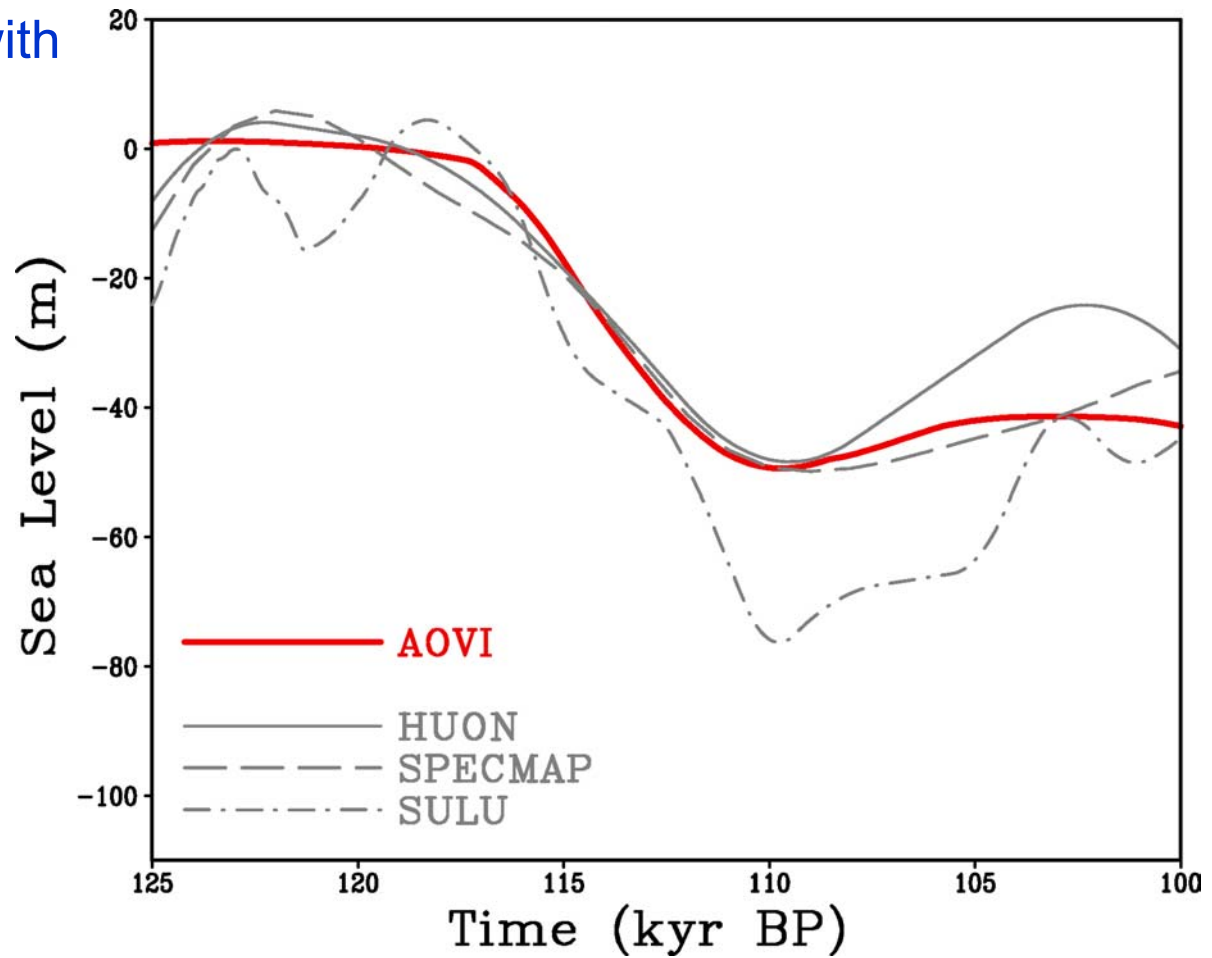
The Model

The climate-system model CLIMBER



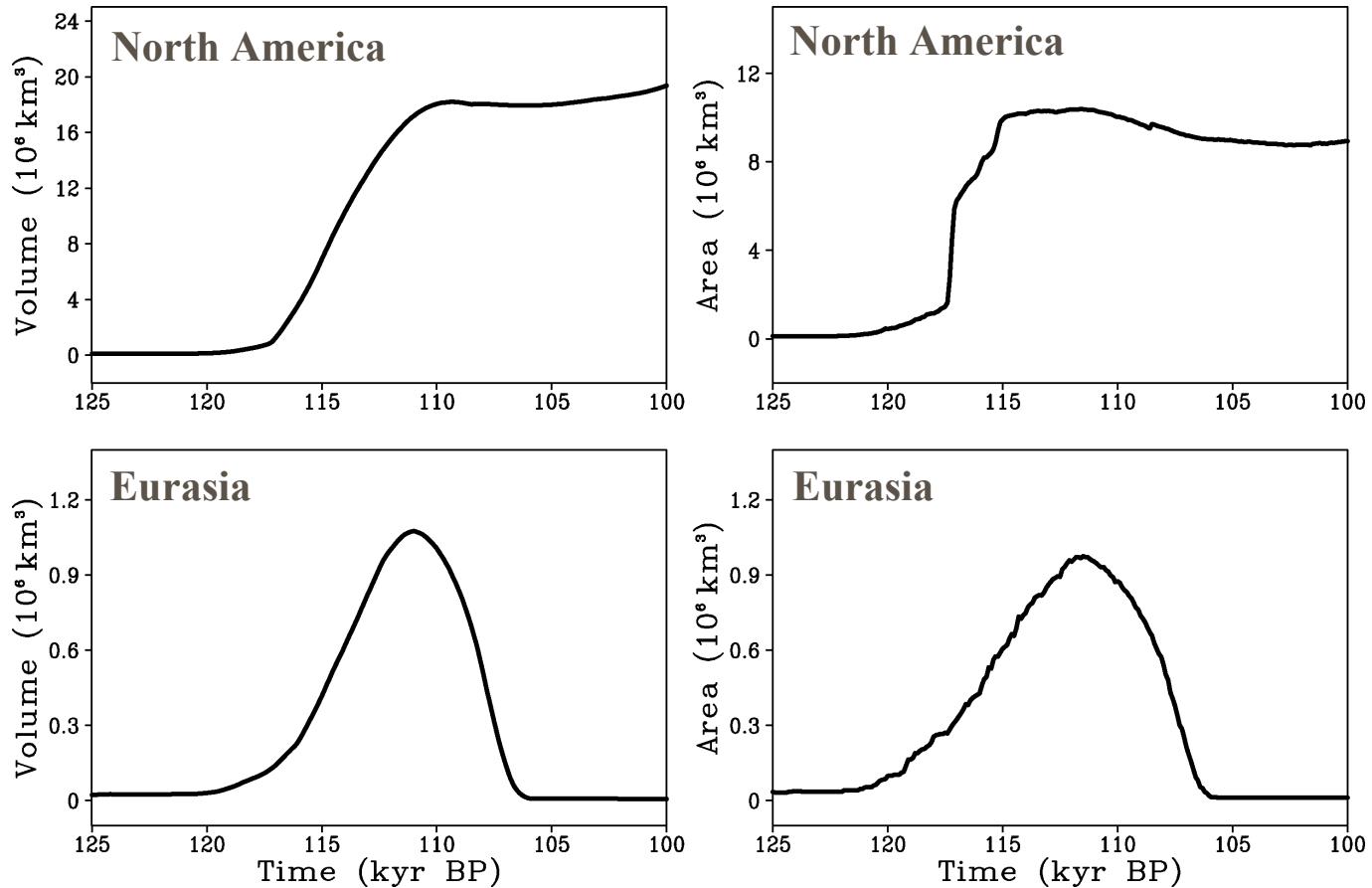
The Glacial Inception

Comparison with
data



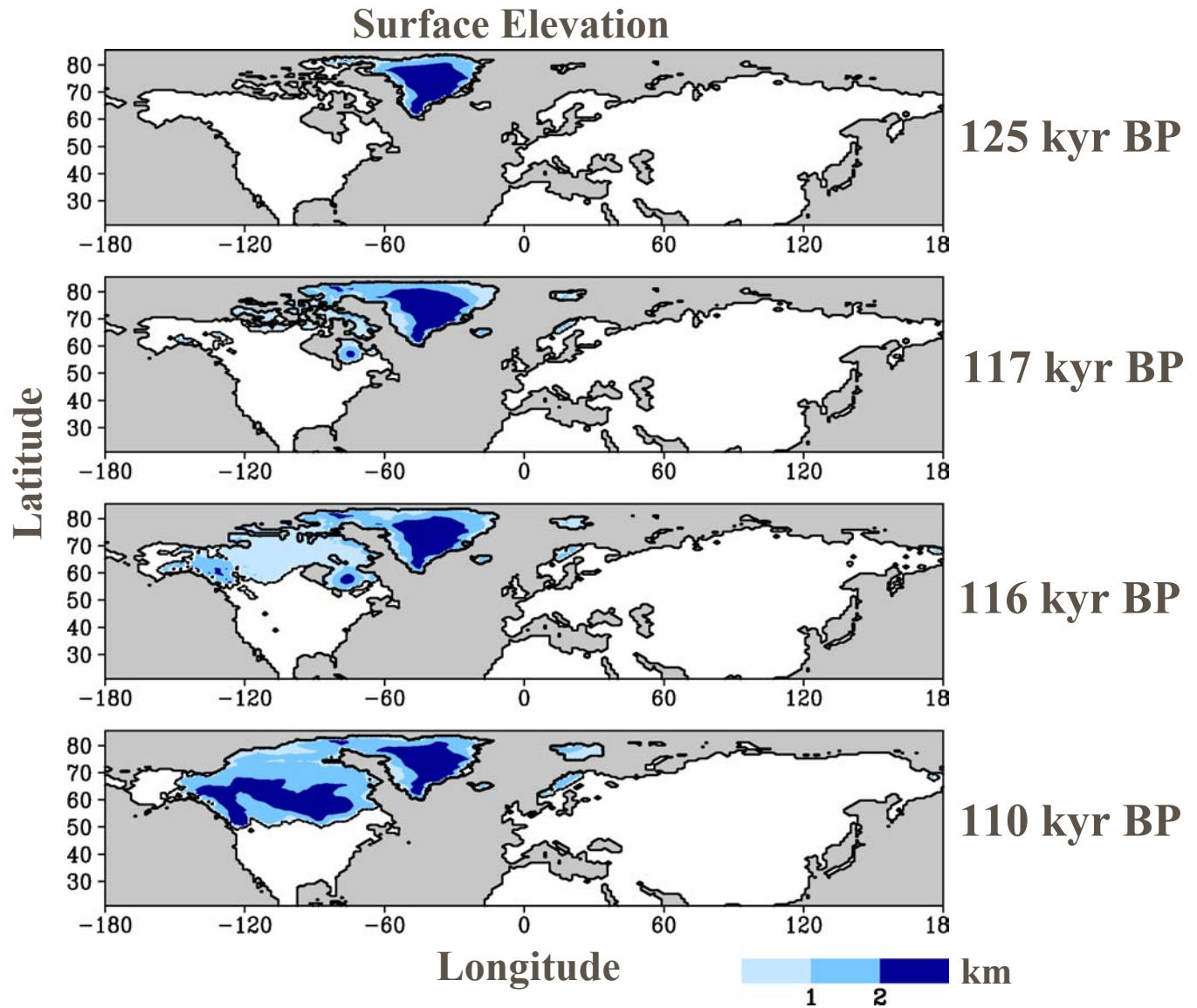
The Glacial Inception

Ice Volume and Ice Area of AONI



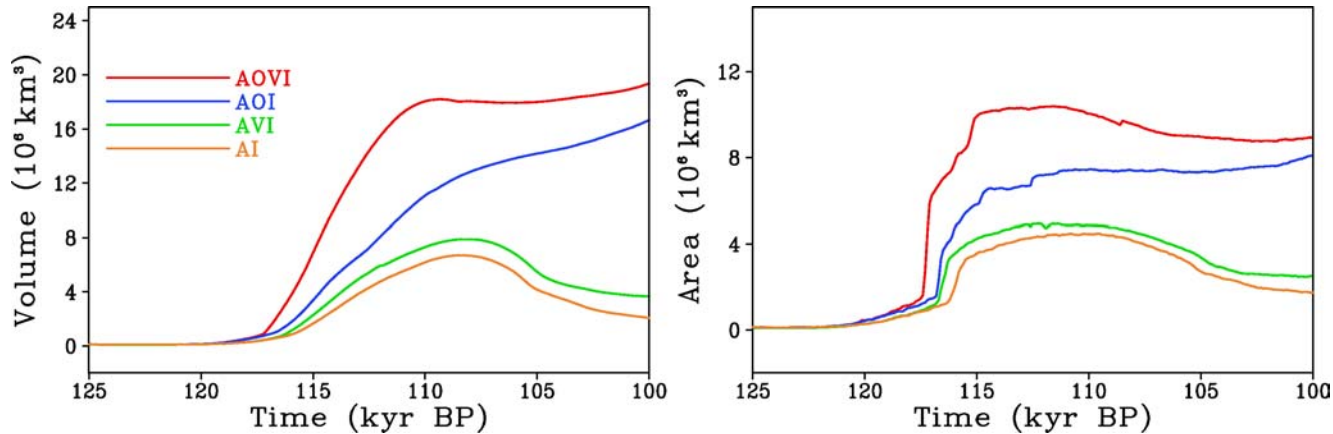
The Glacial Inception

AOVI



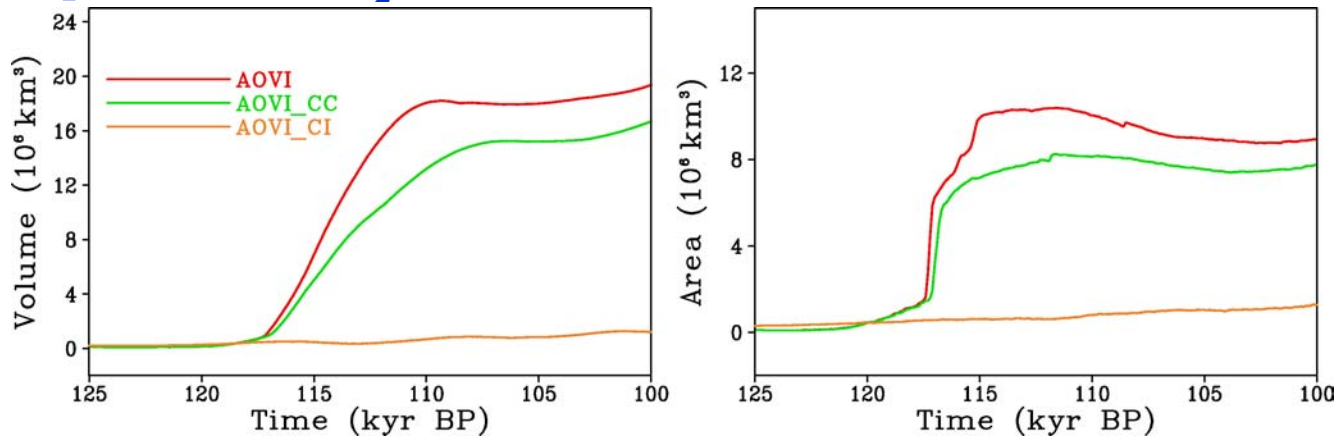
The Glacial Inception

Impact of the Ocean and the Terrestrial Vegetation



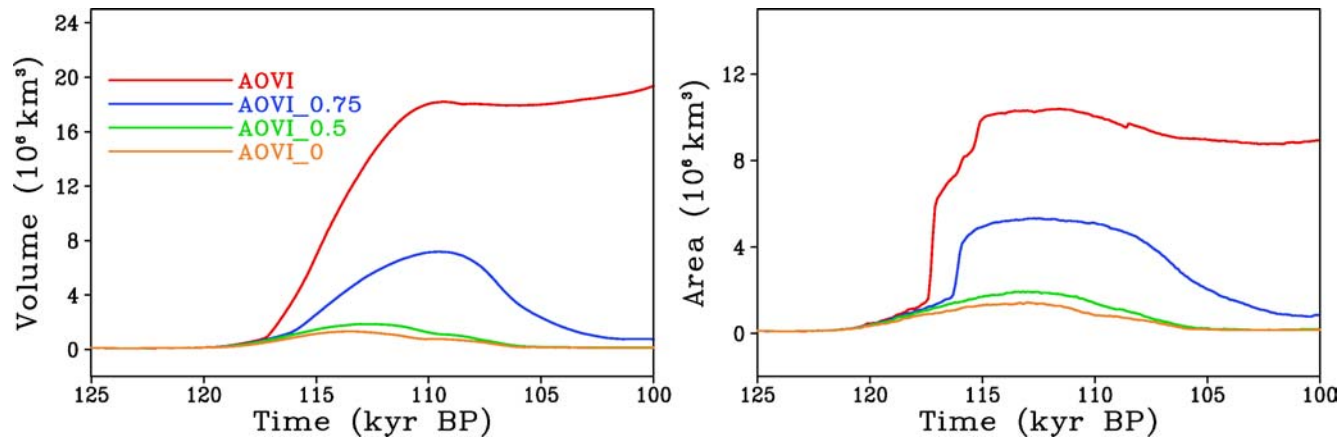
Inland Ice
in
North
America

Impact of the CO₂ and the Insolation



The Glacial Inception

Importance of the coupling between the climate and the ice sheets



Conclusions

- The climate-system model CLIMBER-2.3 is able to model the glacial inception
- Our ice cover corresponds with the geological evidence
- Our sea-level drop corresponds with the proxies
- The feedbacks of the ocean and the terrestrial vegetation are important factors in order to model a successful glacial inception
- The atmospheric dust is crucial to simulate the observed spatial extent of the ice sheets
- The glacial inception is a dynamical process – it makes little sense to perform time-slice runs



Outlook

- Modelling other glacial inceptions than the last one
- Model for the dust transport in the atmosphere
- Coupling the fresh water from the ice sheets with the ocean
- Including the ocean carbon cycle
- Milankovitch-only simulations

