



Abstract ID : 269

Exploring the impact of different past climatic forcings on Antarctic Ice sheet evolution and dynamics

Content

Simulations of past Antarctic ice sheet (AIS) evolution depend, besides the intrinsic model specific uncertainties, on the applied climatic forcing. To model the past Antarctic Ice Sheet, a large set of different forcings from global and regional climate models, is available. For a more complete understanding of the modeled ice sheet dynamics, especially in the vicinity of ice core drilling sites, it is therefore critical to understand the influence and the resulting model differences and uncertainties associated with climate forcing choices.

In this study we examine the impact of different climatic forcings onto the equilibrium state of the AIS with an additional focus on changes at an around ice-core drilling sites on both, the West and East Antarctic Ice sheet. We apply LGM, LIG, mid-Pliocene warm period climate forcings from the PMIP4 climate model ensemble onto the Parallel Ice Sheet Model (PISM v.2.0). Further, we investigate the response of the ice dynamics, the total ice mass, its distribution, and the grounding line dynamics of the modeled equilibrium ice sheet under varying ice sheet sensitivity parameterizations.

With this analysis, we aim to gain a better understanding of AIS modelling uncertainties due to the applied climatic forcings and parameterizations, which will improve the assessment of modeled past ice-sheet evolution.

Primary author: WIRTHS, Christian (University of Bern)

Co-authors: Dr SUTTER, Johannes Carl Roderick (University of Bern); STOCKER, Thomas (University of Bern)

Presenter: WIRTHS, Christian (University of Bern)

Track Classification: Ice dynamics, ice sheet instability and geophysics