



The effect of different climate states on the Antarctic Ice Sheet

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article

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Variations of the Antarctic Ice Sheet (AIS) have a large impact on sea level and ocean circulation. Its state depends strongly on geometric and climatic parameters, it is therefore important to find out which parameters have the strongest influence. In this study we use the dynamical ice sheet model Anice to investigate how the Antarctic Ice Sheet reacts to different forcings by doing sensitivity experiments on the period of the Last Glacial Maximum (LGM) to the present day. We use output of the high-resolution regional climate model RACMO_{2.1}/ANT to provide Anice with detailed and realistic precipitation and temperature fields. ALBMAP v1 is used to provide the topography, ice thickness and geothermal heat flux data. Ocean temperature data from ECHAM53 are used to force the ocean around the AIS. The model has been spun up from the Eemian (120 ka) to the LGM to find an initial state for the sensitivity experiments. Results are compared to assess the effect of changing different parameters, like the calving coefficient, and different forcings (e.g. the difference between using the Vostok and the EDC temperature records). The results will be presented for the different parameter settings and forcings.