



The effect of different climate states on the Antarctic Ice Sheet

Malou Maris and Hans Oerlemans
Utrecht University, IMAU, Utrecht, Netherlands

Variations of the Antarctic Ice Sheet 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 parallel ice sheet model PISM to investigate how the Antarctic Ice Sheet reacts to different climate states. We use output of the high-resolution regional climate model RACMO2.1/ANT to provide PISM with detailed and realistic precipitation and temperature fields. ALBMAP v1 (A.M. Le Brocq et al., 2010) is used to provide the topography, ice thickness and geothermal heat flux data. The model has been run towards a steady state with different initial settings. Changing one parameter at a time, results are compared to assess the effects of different climate states on the ice sheet. Parameters that have been changed are the temperature lapse rate and the geothermal heat flux, amongst others. The build-up of the ice sheet, starting with no ice at all, is also investigated. Results will be presented for the different parameter settings and for the build-up scenario.