

Development of a coupled ice-sheet/earth rebound model for Antarctic ice-sheet simulation

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Feedback between changes in the ice-sheet and the earth's isostatic rebound is considered to be an important process for the evolution of the past ice-sheets in glacial cycles. We have been developing a coupled ice-sheet/earth rebound model which were applied for northern hemisphere ice sheet simulation during glacial/interglacial cycles. Earth rebound model is based on a self-gravitating visco-elastic multi-layer model developed by Okuno and Nakada (2001), while the ice-sheet model is IcIES (Abe-Ouchi 2013). The results are compared with the previous IcIES results which coupled with a simple isostatic model (i.e., a local lithosphere/relaxing asthenosphere) which is controlled by two parameters (the mantle density and the time scale of isostatic response), in order to discuss the effect of more realistic visco-elastic structure of the earth.

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