Master of Science Project

Department of Space Engineering

Theme: Geoscience

Simulating the evolution of the Greenland Ice Sheet including Earth's deformation using a new state-of-the-art model

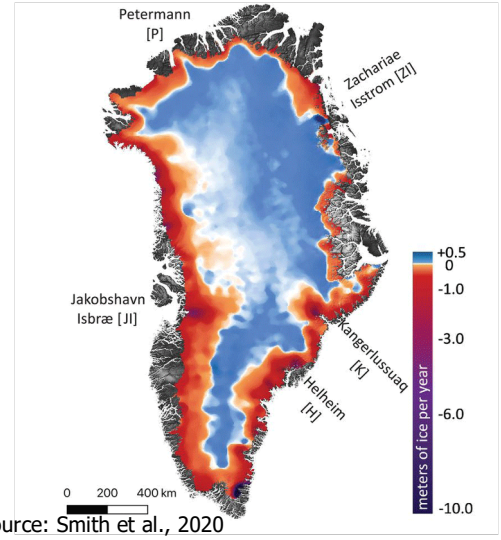
Summary

During the last decades, the Greenland Ice Sheet has been a major contributor to global sea level rise and a better understanding of the evolution of the Greenland Ice Sheet is needed to improve sea level rise projections. The evolution of the Greenland Ice Sheet is partly dependent on the response of the Earth's interior to changes in the mass of the ice sheet, called Glacial Isostatic Adjustment (GIA). The deformation of the Earth is mainly dependent on the viscosity of the interior of the Earth.

In this thesis, you will use a state-of-the-art model to simulate the evolution of the Greenland Ice Sheet including GIA simulations with a finite-element model. You will investigate the influence of the viscosity of the Earth's interior on the evolution of the Greenland Ice Sheet from 120 000 years ago till present day.

Student profile

This project is suitable for a student with an affinity for numerical modelling.



Source: Smith et al., 2020

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