Master of Science Project

Department of Space Engineering

Theme: Geoscience

Create a state-of-the-art model to simulate Earth's deformation

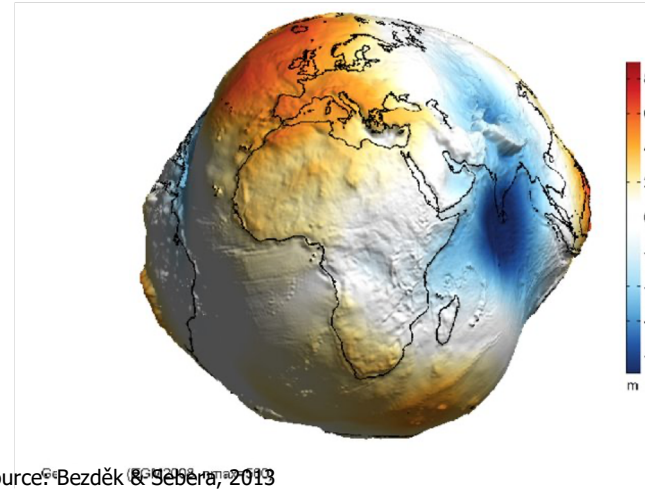
Summary

The interior and the surface of the Earth deform due to changes in loading at the Earth's surface, such as melting ice sheets and sea level changes. Conversely, the deformation of the Earth influences the growth and melt of ice sheets and changes the sea level. The deformation of the Earth is mainly dependent on the viscosity of the interior of the Earth. Simulating the deformation of the Earth in the most advanced way is done using a state-of-the-art model that includes non-linear relations and 3D varying properties of the material of the Earth. However, there are different methods to create state-of-the-art models and there is a constant need for faster and more advanced models.

In this thesis, you will dive into the physics and modelling of the interior of the Earth. You will investigate new methods and create models to simulate the deformation of the Earth in three dimensions and in time.

Student profile

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



Source: Bezděk & Sebera, 2013

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