

DynaQlim: An ILP driven task force project on Upper Mantle Dynamics and Quaternary Climate in Cratonic Areas

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We describe an inter-disciplinary project DynaQlim for studying the relationship between Glacial Isostatic Adjustment (GIA), upper mantle structure, dynamics and Quaternary climate. DynaQlim is an International Lithosphere Program (ILP)-driven task force, scheduled from late 2007 to 2012 (<http://sclilp.gfz-potsdam.de/> -> Projects -> DynaQlim). It integrates existing data and models from a variety of disciplines that consider processes over a range of spatial and temporal scales relating to the Quaternary evolution of cratonic regions, such as Fennoscandia.

The phenomenon of GIA contains information about the recent climate forcing, being dependent on the geologically recent on- and off-loading of ice sheets. DynaQlim gives a unique chance to study the dynamics and rheology of the lithosphere and asthenosphere with increasingly detailed modelling, and it is of fundamental importance in geodesy, geodynamics and palaeoclimate.

A key aim will be to facilitate the development of various models in order to generate more accurate predictions of Earth and ice sheet evolution during the Quaternary, and thus to understand the past and contemporaneous evolution of topography in previously glaciated terrains. There exist many open questions in relation to upper mantle dynamics and composition, rebound mechanism and uplift models, elastic thickness contra lithosphere thickness, as well as ice thickness during the late Quaternary. Models and information gained in the project will have a number of applications, including present-day global change as well as future changes in response to a warming climate. We see need here to establish connections with the TopoScandia and DynaQlim networks.