



First measurements with the Danish absolute gravimeter A10-019 in Greenland.

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Since 2007, in a collaboration between the Ohio State University, the Luxembourg University and DTU Space (Technical University of Denmark), have a number of permanent GPS stations been deployed in Greenland in a project called GNET (Greenland Network). These autonomous stations are placed all around the Greenland ice sheet and placed on the ice-free bedrock. At the present, 45 stations have been deployed. The goal is to measure the vertical movement of the bedrock and the land uplift as a result of the ice mass changes.

The land uplift signal measured by long continuous GPS time series consists of two superimposed signals; one related to the present ice melting and another related to the melting of the ice in the past, also known as GIA (Glacial Isostatic Adjustment). These two signals are a consequence of the elastic and viscoelastic response of the Earth to the present and past ice mass changes. One way to separate these two signals for the location of each permanent GPS station is to measure independently the gravity changes at the same stations. The magnitude of the two signals gives information on present day ice volume changes as well as on the rheological properties of the Earth.

In 2008 DTU Space acquired a portable A10 absolute gravimeter - a free-fall instrument produced by Micro-g LaCoste. The main purpose is to measure the change in gravity with time at the GNET GPS stations. Another activity is to measure 1st order gravity stations.

In 2009 the first measurements were done initiating the future time series for the gravity change. In 2009 have 25 absolute gravity stations in Greenland been measured, out of these are 11 GNET stations. It is planned that some of these stations will be revisited in the future; roughly with 2-3 years interval. The campaigns for this year are planned.

Experiences and preliminary results will be presented.