

NKG Working Group for Geodynamics, Gävle, April 2004

Report from Lantmäteriet, Sweden for 2003

A major effort has been done during the field season of 2003 to measure the 63rd degree land uplift gravity line for the last time. Lantmäteriet contributed with two persons, who did the measurements in August and September in co-operation with FGI and KMS. In October also a minor effort to measure the 56th degree land uplift gravity line was done in co-operation with KMS. These two campaigns were performed using relative gravimeters, measurements have been carried out using the two LaCoste&Romberg gravimeters from Lantmäteriet and two LaCoste&Romberg borrowed from Statens Kartverk, Norway.

During 2003, three new absolute gravity sites have been established in Sweden. Two of these are located inside old SWEPOS-stations, in Arjeplog and in Östersund. The third one is located inside a future SWEPOS-station, in Kramfors, less than one kilometer away from the relative site in Kramfors. These sites were used in one of the on-going absolute gravity campaigns and measured by IFE from Hannover. It was also decided that in 2004 a new absolute gravity site will be established in Visby and most probably also in Smögen. Visby is under construction and Smögen will soon be investigated regarding the possibility to build a station.

The production levelling in the **third precise levelling** of Sweden is completed. The remaining work towards a final adjustment concerns checks for error sources and adjustment discussions. One important question is the determination of land uplift using precise levelling as well as other techniques (mareographs, SWEPOS-stations etc.). Work is undertaken within NKG Height Determination Group regarding the adjustment of the Nordic Block. The work will be done using Lambecks land uplift models as well as data from the UELN database for levellings from Netherlands, Germany, Poland, Latvia, Lithuania and Estonia. The adjustment will give values for zero point(s) in Sweden, Norway and Finland for their respective national adjustment when the countries also will use best available land uplift for respective country. The new national height system in Sweden will be called RH 2000.

Routines for automatic static monitoring of the SWEPOS network are under development. The Bernese GPS Software ver 4.2 is used for static processing of the last day. The processing is started as soon as all 24 hour observation files as well as IGS Ultra rapid orbits and earth orientation parameters are available. The result is analysed and the coordinates of unstable stations could be updated if needed. The routines are today run in a half-automatic way.