



## **Adjustment of the Polish gravity network in zero tide system**

T. Olszak, M. Barlik, and A. Pachuta

Department of Geodesy and Geodetic Astronomy; Faculty of Geodesy and Cartography, Warsaw University of Technology;  
Warsaw, Poland. t.olszak@gik.pw.edu.pl

The Polish gravimetric fundamental network were measured at mid-nineties previous century. Structure of network consisted on 17 absolute stations and 356 stations determined by relative surveys. Since 2006 fundamental network has been modernized. Scope of those work consist new measurement at existing stations and establish new several points. Every new absolute  $g$  measurements was linked with existing stations of gravimetric base network. Every  $g$  and  $dg$  determinations was corrected to non-tidal gravity system, absolute determinations with using harmonic tidal waves representation while relative measurements with using simple Longman formula. From other side, new Polish vertical datum, after re-measurements in 2001, is developed with correction to zero-tide system. That means between vertical and gravity system is inconsistency which can be a reason of systematic errors.

In paper we present results re-adjustment of the Polish Gravity Network (POGK) in non-tidal and zero-tide system. Adjustment taking into account all absolute gravity values (from time period 1995 to 2009) and relative determinations (from 1994 to 2008). Long period of measurements not allow treat the adjustment results as connected with specifically epoch because during such long time geodynamical and environmental factors could change gravity values. However, obtained results can be useful in context of a future modernizations to comparison and link between previous and future gravity network realization.