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Examination of the long-standing non-tidal changes of the absolute gravity at main tectonic units on Poland territory

M. Barlik, T. Olszak, A. Pachuta

Warsaw University of Technology, Faculty of Geodesy and Cartography, Section of Geodesy and Geodetic Astronomy, Warsaw, Poland (m.barlik@gik.pw.edu.pl / Fax: +48 22 6210052 / Phone: +48 22 6228515)

Warsaw University of Technology (Poland) provided a lot of gravimetric projects. There were among others: first gravity measurements on Antarctica (70's) by pendulum apparatus constructed in Poland, the own construction of ballistic (symmetric rise-and-fall) apparatus ZZG at 90's, as well as, a participation in UNIGRACE CEI project destined to the unification of absolute gravity determination in Central Europe. The team from WUT took a part in measurements of the 1^{st} order gravity national network at 90's and also in determinations of gravity differences on spans between Poland and Slovakia, Germany, Lithuania.

Precise absolute determinations for geodynamical purpose were carried out at five stations of Polish gravity fundamental net. First measurements have been performed at a period between 1995 and 1997. Henceforth, gravity determinations using FG-5, JILAg, IMGC and ZZG apparatus have been located on following stations: JózefosŁ aw (Astro-Geodetical Observatory of the Warsaw University of Technology), Lamkówko (Satellite Observatory of the Warmia-Mazurian University), Borowiec (Satellite-Geodynamical Observatory of the Space Reasearche Centre, Polish Academy of Sciences), Ojców (Seismic Observatory of the Polish Academy of Sciences) and Giby (gravimetric fundamental network station at a north-east part of Poland territory). As one can see, the observatories are distributed on main tectonic units in respect to the Teisseyre – Tornquist (T – T) zone, namely: Lamkówko and Giby on East European

Craton, Borowiec on Fore Sudetic Monokline, Ojców on Malopolska Massif and JózefosŁ aw near the edge of T – T zone on Precambrian Platform.

Since 2005 the absolute gravity observations have been performed by our FG – 5 No. 230 gravity meter. The instrument took a part in absolute gravity meters comparison campaign ICAG in Luxembourg (2007) giving very satisfying results. On Polish territory determinations measurements have been performed on the station located at JózefosŁ aw, near Warsaw, every month, on other stations each autumn, almost under the same meteorological and hydrological conditions.

The results of a comparison of our and previous gravity determinations in the paper will be given. Also an attempt of interpretation of the gravity decreasing, close to 10 μGals during ten years, concerning recent vertical crust surface displacements and environmental effects near observatories and periodical changes at JózefosŁ aw will be taken into consideration.