



Establishment of new gravity control in Poland – first results

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The technical project of the modernization of the Polish gravity control developed in cooperation of the Institute of Geodesy and Cartography (IGiK), Warsaw, with the Warsaw University of Technology had been approved in late 2011 by the Head Office of Geodesy and Cartography and the works on the establishment of a new gravity control started in the middle of 2012. The new gravity control consists of 168 base stations (located in field – measured in 2012 and 2013 with the A10-020 gravimeter) and 28 fundamental stations (located in laboratories – to be measured in 2014 with the FG5 gravimeter).

These results of absolute gravity measurements with the A10-020 gravimeter of IGiK on base stations of the new gravity control are presented. Besides absolute gravity the vertical gravity gradients were determined on base stations with the use of LaCoste&Romberg (LCR) relative gravimeters and a specially developed stable stand allowing to set up the gravimeter at 6 levels. Inconsistency of the determined vertical gravity gradients with respect to the normal ones has been presented. 77 base stations are the stations of the previous gravity (POGK'99) established in 90. of 20 century. Differences between newly determined gravity at those stations with those of POGK'99 were evaluated.

A number of additional activities were carried on to control the measurements and to ensure the realization of the gravity standard. They concerned regular measurements with the A10-020 at three sites at Borowa Gora Geodetic–Geophysical Observatory, calibrations of metrological parameters of the A10-020 and scale factor calibrations for LCR gravimeters, participation with the A10-020 in the international (ICAG2013) and regional comparison campaigns of absolute gravimeters, and local comparisons of the A10-020 with the FG5 expected to be used for gravity survey at the fundamental stations of the gravity control.