



The Regional International Comparison of Absolute Gravimeters in 2010 demonstrates the potential of the new gravity laboratory building in Wettzell

Reinhard Falk (1), Hartmut Wziontek (1), Jan Müller (1), Andreas Reinhold (1), Herbert Wilmes (1), Ludger Timmen (2), Andreas Engfeldt (3), Vojtech Pálinkás (4), and Jakub Kostelecký (4)

(1) Federal Agency for Cartography and Geodesy, Frankfurt/Main, Germany, (2) Institut für Erdmessung, Leibniz Universität Hannover, Hannover, Germany, (3) Lantmäteriet, I-Divisionen Geodesi, Gävle, Sweden, (4) Research Institute of Geodesy, Topography and Cartography (VÚGTK), Geodetic Observatory Pecny, Ondrejov, Czech Republic

In a global gravity reference system the repeated comparison of the contributing absolute gravimeters (AG) is essential. Due to the increasing number of available AG and the closure of the BIPM to international AG comparisons, regional comparison sites for AG gain in importance. The Geodetic Observatory Wettzell is the German fundamental station with the capacity to contribute all available geodetic space techniques to the definition of the global reference in support of scientific services and investigations in geodesy, astronomy and geophysics. AG measurements at this observatory go back to 1989, and during the period 1998 to 2000 the station acted as one of the two reference sites in the UNIGRACE project. In 2010, a new gravimetric laboratory building was completed in Wettzell. It contains two piers in separate rooms for superconducting gravimeters (SG) and four piers for AG, both under stable temperature conditions and with easy outside access. The Superconducting Gravimeter SG-030 in its updated design has been recording in this new building since June 2010. The first Regional International Comparison of Absolute Gravimeters in Wettzell (RICAG_WE) took place from November 15-20, 2010. Five AG of FG5-types participated and measured at three different piers at least with repeated setups in opposing instrumental orientations. This measurement scheme makes possible referencing of the single gravimeter results of the different setup sites to the continuous gravity signal of the SG and by this to distinguish between time dependent gravity variations and instrumental offsets. As a major result, instrumental offsets of less than 30 nm/s^2 to the mean of all the AG measurements of RICAG_WE 2010 were measured. The results of this comparison are presented and the value of the new station as a regional comparison site for AG will be demonstrated.