



The Austrian absolute gravity base net: 27 years of spatial and temporal acquisition of gravity data

Christian Ullrich and Diethard Ruess

Federal Office of Metrology and Surveying (BEV), Vienna, Austria (christian.ullrich@bev.gv.at; diethard.ruess@bev.gv.at)

Since 1987 the BEV (Federal Office of Metrology and Surveying) has been operating the absolute gravimeters JLAG-6 and FG5 which are used for basic measurements to determine or review fundamental gravity stations in Austria and abroad. Overall more than 70 absolute gravity stations were installed in Austria and neighbouring countries and some of them have been regularly monitored. A few stations are part of international projects like ECGN (European Combined Geodetic network) and UNIGRACE (Unification of Gravity System in Central and Eastern Europe). As a national metrology institute (NMI) the Metrology Service of the BEV maintains the national standards for the realisation of the legal units of measurement and ensures their international equivalence and recognition. Thus the BEV maintains the national standard for gravimetry in Austria, which is validated and confirmed by international comparisons. Since 1989 the Austrian absolute gravimeters participated seven times in the ICAG's (International Comparison of Absolute Gravimeters) at the BIPM in Paris and Luxemburg and as well participated three times at the ECAG (European Comparison of Absolute Gravimeters) in Luxemburg. The results of these ICAG's and especially the performance of the Austrian absolute gravimeter are reported in this presentation. We also present some examples and interpretation of long time monitoring stations of absolute gravity in several Austrian locations. Some stations are located in large cities like Vienna and Graz and some others are situated in mountainous regions. Mountain stations are at the Conrad Observatory where a SG (Superconducting Gravimeter) is permanently monitoring and in Obergurgl (Tyrolia) at an elevation of approx. 2000 m which is very strong influenced from the glacier retreat.