



Comparison of long-term SLR and GNSS solutions from selected stations in the frame of GGOS realization

K. Szafranek (1), S. Schillak (2), A. Araszkiewicz (1), M. Figurski (1), M. Lehmann (2), and P. Lejba (2)

(1) Centre of Applied Geomatics, Military University of Technology, Warsaw, Poland, (2) Astrogeodynamic Observatory in Borowiec, Space Research Centre, Poland

Up-to-date investigations concerning space geodesy are mostly aimed at data of various techniques joint processing. The poster presents solutions (North, East, Up components) of selected stations (McDonald, Yarragadee, Greenbelt, Monument Peak, Zimmerwald, Borowiec, Mt.Stromlo-Orroral, Potsdam, Graz, Herstmonceux and Wettzell), which adopted Satellite Laser Ranging (SLR) and Global Navigation Satellite System (GNSS) techniques and which were gathering the data in the same time (from 1994 to 2010). Processing of both types of data was made according to Global Geodetic Observing System (GGOS) recommendations, the same models and parameters from IERS Conventions 2010 were used in both processing strategies (if it was possible).

The main goal was to obtain coordinates and their changes in time (velocities) basing on both techniques and to compare the results. The station coordinates were determined for the common reference epoch of both techniques - for first day of each month. Monthly orbital arcs for laser observations were created basing on solutions from several SLR sites (observations to LAGEOS-1 and LAGEOS-2 satellites) with the best solutions quality and the highest amount of observations. For GNSS coordinates determination about 130 sites belonging to International GNSS Service (IGS) were selected: 30 with local ties to SLR sites and others basing on their geolocalization (length of the baselines) and solutions time series analysis. Mainly, core IGS stations were used. Solutions of both techniques were analyzed in order to verify agreement of both techniques and for independent control of local ties.