



The comparison of the reference frames ITRF2000 and ITRF2005 in the determination SLR station positions and velocities

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The implementation of the International Terrestrial Reference Frame 2005 is the important step towards the better accuracy and stability of the station coordinates. The paper consists the estimation of the quality differences between terrestrial frames ITRF2000 and ITRF2005 for the SLR technique. The determination of the SLR station positions and velocities were calculated by means of the orbital program GEODYN-II from monthly arcs of LAGEOS satellites independent for the both frames keeping the same all data, parameters and models of the orbital program. The analysis was performed for the period of five years from 1999.0 to 2004.0 for the SLR stations with continuous data in the minimum period of four years (25 SLR stations). The comparison between ITRF2000 and ITRF2005 include estimation of the following quality parameters: stability of the station coordinates, standard deviation of the coordinates determination, stations velocities (in comparison to NNR NUVEL1A model), precision of the station velocities determination, and separately for the satellites LAGEOS-1 and LAGEOS-2: orbital RMS, the mean range bias and range bias stability for each station. The quality of the orbits was also compared. The results show for all determined parameters significant improvement of the parameters from ITRF2005 for the most stations. ITRF2005 is the next important step for upgrading of the orbits quality and SLR station positions and velocities.