



A 12 years SLR coordinate time series: discontinuities and range bias estimation

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At GeoForschungsZentrum Potsdam (GFZ) 12 years of Satellite Laser Ranging (SLR) observations of the two LAGEOS satellites have been evaluated for the generation of weekly solutions of Earth orientation parameters (EOPs) and ground station coordinates. This work was initiated as the GFZ analysis center contribution to the efforts of the International SLR Service (ILRS) for the generation of an intra-technique combination as input to the International Terrestrial Reference Frame 2004 (ITRF2004). In our first approach, EOPs and coordinates were estimated with no systematic parameters solved for. After the first combination, ILRS decided that for certain stations range biases need to be estimated in order to mitigate unknown systematic effects visible as discontinuities in the coordinate time series. The adoption of these recommendations in our second approach has been of help partially only. In some cases the coordinate solution gets weaker in terms of stability in comparison to the non-biased approach. The two approaches are compared with detailed examples. Finally, the effect on reference frame location and scale is determined.