

Extension of the SLR tracking network and its potential for the realization of Terrestrial Reference Frames

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The current SLR tracking network suffers from a disadvantageous network geometry due to a lack of stations especially in the southern hemisphere. Previous simulation studies have shown that the extension of the global SLR tracking network is indispensable for reaching the accuracy goals of the Terrestrial Reference Frames of the future. The simulation studies have put focus on a determination of the locations where additional SLR stations are most valuable for the realization of the estimated geodetic parameters. Within the present simulation studies, different possibilities for an extended global SLR tracking network have been compared by following two different approaches. In a first step, SLR stations which are already under consideration have been added to the existing network. In a second step, we performed a simulation of a set of stations distributed equally over the globe and comparing different solutions, always adding one of these simulated stations to the real SLR station network. This approach has been chosen in order to be able to investigate the deficiencies of the existing SLR network and to judge in which regions on the globe an additional SLR station could be valuable for the improvement of certain geodetic parameters of SLR-derived reference frames.