

Future TRFs and GGOS – Where to put the next SLR station?

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SLR is one of the four geodetic techniques contributing to the realization of terrestrial reference frames (TRFs). It is the unique technique enabling a highly accurate determination of the origin, and it contributes to the determination of the TRF scale. The current SLR tracking network suffers from an insufficient 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 target accuracy of future TRFs and the ambitious GGOS goals. The simulation studies have put focus on a determination of the locations where additional SLR stations are most valuable for an improved estimation of the geodetic parameters.

Within the present study, we perform 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 most valuable for the improvement of certain geodetic parameters of SLR-derived reference frames.