

Optimization of the current SLR tracking network: potential for SLR-derived reference frames

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Operational Satellite Laser Ranging now has a history of over 40 years. The current SLR tracking network evolved over this period and now comprises stations from different epochs on different technological levels. In the upcoming years, the upgrading and even the automatization of the systems will be an issue, bearing a great potential for enhancing the overall performance of SLR and the quality of the geodetic parameters derived.

Within a simulation study, we have been investigating the current deficiencies of the SLR tracking network and how the impact of a technical improvement of certain existing stations would be. We have performed a comparison of different scenarios in order to be able to determine the impact of the performance of different SLR stations on the estimated geodetic parameters. The outcomes of the study are intended to contribute to lay the basis for a concerted upgrading of the existing station network.