

Evaluating the potential of combined SLR gravity field solutions

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The long-wavelengths of the Earth's gravity field can be determined very accurately using Satellite Laser Ranging. Up to now, only a few time series for these coefficients are provided by a hand-full of institutions. In this presentation, we compare estimated time series of selected gravity field coefficients and identify potential areas of improvement regarding common standards and conventions. In this context, test computations are performed to quantify the impact of non-uniform solutions setups and geophysical models on the low-degree spherical harmonics. The time series will be combined following different combination strategies. A special focus is also put on the realization of the geodetic datum and its consequences for the derived gravity field solutions. The goal of this study is to identify optimal processing strategies and to highlight the benefits of a combined multi-institutional SLR-only gravity field solution.