Geophysical Research Abstracts
Vol. 15, EGU2013-4330, 2013
EGU General Assembly 2013

Benefit of further ground stations and retro-reflectors for Lunar Laser Ranging analysis

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More than 43 years of Lunar Laser Ranging (LLR) data analysis is based on observations using mainly 4 observatories and 5 retro-reflectors on the moon. The observatories are located at the Earth's northern hemisphere and the retro-reflectors are mainly located on the central part of the Earth-visible lunar side. Therefore the geometric configuration of LLR observations is not optimal.
We will show the effect of further lunar retro-reflectors and terrestrial observatories based on simulations. Their benefit will be demonstrated addressing the accuracy of different estimated parameters, e.g. coordinates of retro-reflectors.