

Evaluation of the lunar laser topographic data by KAGUYA-LALT - comparison with LRO-LOLA -

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The laser altimeter (LALT) on board Japanese lunar orbiter KAGUYA has obtained about 22.06 million lunar ranging data and 10.34 million of these data are selected for making the lunar topographic data. Further, global and polar (more than 79 degrees in both latitude) grid data whose resolution is 1/16 degree (1.895km in the equatorial region) and 1/32 degree (0.947km in longitude)*1/128 degree (0.237km in latitude) respectively, has been made and released from 1st November, 2009, followed by 2nd version of these data sets based on revised orbit data of the KAGUYA main orbiter from 19th January, 2012.

However, as pointed out by Korohkin et al. (2010), these grid data show several misfits comparing with the real topography, such that a small crater about 10km diameter is represented as a small dome by the false interpolation, probably caused by the sparse data distribution due to the small laser return rate on the rough terrain. In this poster presentation, we compare LALT grid data with Lunar Reconnaissance Orbiter (LRO)-LOLA for the evaluation of the global topographic accuracy of the LALT grid data, and also for the difference of the Mean Earth / Polar axis lunar reference system employed for both LALT and LOLA topography.

Korohkin et al., 2010, Removal of topographic effects from lunar images using Kaguya (LALT) and Earth-based observations, Planet. Space Sci., 58, 1298-1306.

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