

A Study on the Evolution Processes of Surface and Inner Structures for lunar basins using global gravity data by SELENE/RSAT

mizuho matsumura[1]; Tomokatsu Morota[2]; Yoshiaki Ishihara[3]; # Takahiro Iwata[2]; Noriyuki Namiki[4]; Koji Matsumoto[3]; Sander Goossens[3]

[1] Erath and Planetary sci ,Tokyo Univ; [2] ISAS/JAXA; [3] RISE, NAOJ; [4] Earth and Planetary Sciences, Kyushu Univ.

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The effect of giant impact for lunar surface and inner structure has important information for the thermal history on the moon. The lunar global gravitational anomaly which is improved by Doppler observation using RSAT onboard KAGUYA/Rstar gives the variety of inner structure.

The purpose of this study is to research inner structure of each lunar basin using Moho-model which is derived for the lunar global gravitational anomaly.

An averaged cross-section diagram of Moho for the eighteen basins (eight basins for the near side and ten basins for the far side) except those in South Pole Aitken are used for deconvolving of excavation cavity and research for shape of isostasy. Inner structure of basin gives some information for the impact creating and relaxation process. The correlation between D/H ratio (ratio of depth and diameter) and degree of mantle uplift from isostasy has reasonableness for almost basin. These results show that relaxation processes have horizontal and vertical flows which stretch and descend Moho, respectively, to recover isostasy.