

Geological map of Mare Smythii based on the SELENE observation data

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Lunar geological map is useful for understanding the process of lunar tectonics and volcanic activity, so the high-resolution terrain and spectral cameras has updated the lunar geological map day by day [e.g., Brennan, 1975; Hiesinger et al., 2010]. Thus, these surface information produced the present lunar geological map, but on which, the subsurface information was not reflected. This information gives the subsurface structure, its stratigraphy, and the thickness of subsurface lava flow layer, so becomes important clue of lunar tectonics and volcanic activity.

In this study, I focused on Mare Smythii, which is located at 2°S, 87°E on the Moon. The surface of Mare Smythii is covered only by one lava flow, which erupted ~3.14 Ga ago [Hiesinger et al., 2010]. According to the SELENE/Lunar Radar Sounder observation, the several subsurface boundaries were founded in Mare Smythii [Ono et al., 2009; Kobayashi et al., 2014]. The part of subsurface boundary outcropped on Mare Smythii, so we concluded that the surface of Mare Smythii was composed of two lava flows at least; the subsurface information succeeded in updating the geological map of Mare Smythii. In the presentation, I will report the preliminary geological map of Mare Smythii.