

Illumination condition at the lunar polar regions by KAGUYA/LALT

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The environment on the equator and midlatitude of the Moon is so severe that the temperature changes in the range of 300 K between days and nights. The polar areas of the Moon are assumed to have comparably moderate temperature due to the long sunlit period, and the power supply to instruments on the lunar surface is much easier than other location. Therefore they are considered to be one of the best site for the in-situ geological study by a lander or rover, or astronomical applications on the Moon.

We analysed the laser altimeter (LALT) data onboard KAGUYA lunar orbiter to find the illumination condition on the lunar polar regions. As of February 2008, the LALT obtained the whole range of the longitude region, which is enough to discuss the regional elevation features, especially on the polar region. For example, the altitude difference between the floor and the surrounding rim of the Shackleton crater on the South pole is found to be about 3.5 km, and it was confirmed to be one of the eternal shade regions. In our paper, we will report the regional sunlit condition in both polar regions.