

Observations of illumination conditions in the Permanently Shadowed Regions (PSRs) with LRO-LAMP

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Abstract

The south pole of the Moon is an area of great interest for exploration and scientific research because many low-lying regions are permanently shaded (PSRs) and are likely to trap volatiles for extended periods of time, while adjacent topographic highs can experience extended periods of sunlight. A primary goal of the Lunar Reconnaissance Orbiter (LRO) mission (Chin et al., 2007) is to characterize the spatial and temporal variability of water on the Moon, with a focus on the Permanently Shadowed Regions (PSRs). The physical properties of the regolith within the PSRs as well as the temporal variability of illumination are of critical importance for achieving this goal. We have compiled observations from multiple LRO instruments to conduct a comparison with far ultraviolet (FUV) observations made by the Lyman Alpha Mapping Project (LAMP; Gladstone et al., 2010) to evaluate illumination at the lunar south pole (within 5° of the pole).

References

Chin et al. (2007) SSRv, 129, 391-419.
Gladstone et al. (2010) SSRv, 150, 161-181.