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PPS024-P07

Room:Convention Hall

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Lunar space weathering dominantly induced by solar wind

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Space weathering causes the change in optical properties, such as darkening and reddening of the planetary surface. Two competing processes have been proposed so far as the main mechanism of such space weathering; hydrogen irradiation by solar wind and bombardment of micrometeorites. We use the new data set obtained by Spectral Profiler (SP) combined with Terrain Camera (TC) onboard SELENE/Kaguya which observed the Moon, and approach the actual process of space weathering. We investigated the optical characteristics of the so-called lunar swirls, which consist of bright/white parts and dark/black parts making enigmatic 'swirl' patterns. We found such albedo markings of lunar swirls correspond to the extent of weathering and not composition, which means some factors to induce space weathering is inhomogeneous connecting with the swirl patterns of the albedo contrast. We conclude space weathering on the Moon would be induced by hydrogen from solar winds dominantly and the effect of the bombardment of micrometeorites may be minor.