the Solar observation image (Popowicz et al., 2017) and one conventional algorithm as a comparison. We calculated the minimum exposure time to obtain the required intensity to provide a sufficiently accurate degree of polarization. Next, we evaluated how many candidate images we needed to select sufficiently sharp images. Finally, we compared whether stacking multiple 0.01-second exposure images has an advantage over taking one long exposure image.

16:10 [Ⅱ-2-5]
Optical Properties on the Walls of Lunar Craters Larger than 2 km

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Previous studies have found that the lunar regolith has latitudinal and longitudinal dependences affected by the flux of space-weathering agents, such as solar wind particles and micro-meteorites. Especially, longitudinal trend is derived by the optical maturity (OMAT) difference between east and west walls of lunar impact craters and is caused by flux variation in solar wind particles when the Moon is in or out of the Earth's magneto-tail. Following Sim et al., who studied the space-weathering asymmetry inside lunar craters, here we apply the extended lunar crater database (Robbins et al.) to consider more and smaller craters. A total of 26,802 craters ranging from 2 to 150 km in diameter are used, more than 10 times the 1,872 in the previous study. We reproduce the dependences with the automated and detailed processes—finding rim, defining the inner structure and dividing wall quadrants of the craters. Using various information such as diameter, slope, and FeO abundance of lunar craters, we analyze optical properties of the wall quadrants.

16:20 [Ⅱ-2-6]
Applying Model for Lunar Crater Detection to Airless Body

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HANCOM inSPACE

It is an important method for researching the origin and evolution of solar system to counting impact craters of solar system bodies. There are many researches of solar system using number of impact craters, and scientiests manually count impact craters every time. Recently, it has researched to count impact craters of Mars and Moon, and the results are applied to may be infer surface age of celestial bodies. We already constructed the deep-learing model based on LROC images, and performed the varification. In this study, we try to detect impact craters of airless bodies applying our model made before, and analysis the results. We performed this process to upgrade model, and we expect that the upgrade model is able to be applied to similar lunar images as like LUTI.

16:30 [Ⅱ-2-7]
ULF Waves Observed by Lunar Prospector

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We have studied the spatial distribution of ultra-low frequency (ULF) in the vicinity of the Moon using Lunar Prospector (LP) magnetometer data obtained at ~100 km altitude during the period from 20 February 1998 to 30 November 1998. We statistically examine lunar ULF wave activity. They are mostly identified over a broad frequency range of 10–60 mHz at LT. The occurrence rate of the ULF wave is high on the dayside above strong magnetic anomalies and depends on the interplanetary magnetic field orientation. We also examine wave properties including the wave propagation direction and polarization. The wave characteristics associated with lunar magnetic anomalies are very similar to Kaguya observations, indicating that the ULF waves observed at LP and Kaguya are generated by the same mechanism. Although lunar ULF waves are commonly observed on the dayside above lunar magnetic anomalies, how they are established as a regular oscillation is not completely understood. In the present study, we suggest that the electromagnetic ion beam instability, driven by protons reflected from lunar magnetic anomalies, is the likely source of ULF waves observed at LP.

16:40 [Ⅱ-2-8]
Mars Atmospheric Entry, Decent, and Landing Technology

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It is focused on Lunar and Mars exploration missions as the Republic of Korea joined the Artemis Accords. Ultimate goal of the Artemis program is to send human to Mars in 2033. Domestic technology readiness level for Mars space exploration is low as Mars and Earth atmospheric entry technology has not yet to be experienced. Space vehicle's surface is exposed to exceedingly high temperature during hypersonic speed entry into a planet's atmosphere. Here, thermal protection technology is very important to explore planets with the atmosphere. The silica phenolic ablator has been developed for a stability test