

Radiometric calibration of LISM: Prelaunch VS Inflight

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LISM (Lunar Imager/SpectroMeter) is an optical instrument onboard a Japanese Lunar exploration satellite SELENE (SELenological and ENgineering Explorer) consisting of three sub-instruments: Terrain Camera (TC), Multiband Imager (MI), and Spectral Profiler (SP). In this presentation, we report the results of the prelaunch radiometric calibration of LISM conducted at Tsukuba Space Center in March, 2003. An integration sphere of 1m diameter was employed as a standard for input radiance. Simultaneously, we check the optical performance of LISM, such as linearity, SNR, inhomogeneity of the optics and pixels, etc.

Space optical sensors generally experience sensitivity degradation after the launch possibly due to the cosmic rays and contaminations. LISM inflight calibration will be performed in the moon orbits to correct such post-launch degradation. The possible targets are the landing sites of Apollo 16 and bright stars, but their spectrum does not cover the entire wavelengths required by LISM and the accuracy is much worse than that of the integration sphere. We introduce a program of ground-based observations to overcome these problems.