

Estimation of absolute lunar radiance based upon atmospheric correction by using Vega

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Advanced Lunar Imaging Spectrometer(ALIS) is a groundbased multispectral imager(1), which consists of three main parts; a cassegrain telescope with 20cm aperture, and spectroscopic cameras for VIS(380-1060nm) and NIR(1000-1700nm). This system can obtain hyperspectral lunar images with high spectral resolution. In order to convert original observation data(digital numbers) to absolute radiance at the lunar surface, we developed a calibration method composed of the following two steps. Firstly we made white field by integrating sphere and decide offset about each CCD pixel and wavelength to cut off telescopic optical noise. After this process, we can get estimation of relative lunar brightness.

Secondly, we need to remove the atmospheric effect. As the study of absolute radiance of Vega(2) has been known by previous studies, we observed Vega by ALIS simultaneously with the lunar observation, and determined calibration coefficients for each wavelength to convert observation data to absolute radiance. We applied this method to the actual ALIS observation data lunar, and can confirmed that we can estimate absolute lunar radiance at lunar surface.