Photometric Function of the Lunar Surface: Model and Dependencies on Wavelength and Geological Type by Clementine Image Analysis

Yasuhiro Yokota[1], Rie Honda[2], Yu-ichi Iijima[1], Hitoshi Mizutani[1]

[1] ISAS, [2] Information Sci., Kochi Univ.

    VIS/NIR spectra have a great potential for estimation of mineral composition and space weathering degree of the lunar surface. For this estimation process, precise lunar photometric functions are required. Recent analyses of Clementine images show that these functions have dependencies on the wavelength and the geological type. As there are no models for these dependencies yet, rigorous methods for precise estimation of surface composition and weathering are not yet available. We developed an analysis system to process a large number of Clementine images to compare photometric models and to examine the above mentioned dependencies. We will report results from the analysis of images taken in the mapping phase, from +30N to -30N in three bands (415, 750, 950nm) .