

かぐや MI データを用いた危難の海盆地南西辺縁部の月高地における鉱物分布の解析 Mineral distribution on lunar highland in the southwest sector of the Crisium basin with SELENE MI

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SELENE (Kaguya) Multiband Imager (MI) provides a global and homogeneous spatial coverage of multiband data set of the moon. Its spectral coverage ranges visible and near infrared wavelength including absorption features of major lunar highland minerals: plagioclase, olivine, and pyroxene. We perform an extensive survey of mineral outcrops with MI multiband data on lunar highland in the southwest sector of the Crisium basin. It is reported that outcrops of these major minerals are found in this region by sparse survey with SELENE (Kaguya) Spectral Profiler observation (Nakamura et al., 2012; Yamamoto et al., 2010, 2012, 2014). It is also expected that a large impact event forming the Crisium basin excavate vertical stratigraphy of lunar highland, and possibly mantle materials.

Possible mineral outcrops are identified at which deep absorptions are found in continuum-removed spectra of MI. Position of absorption centers of plagioclase, olivine, and pyroxene are 1250, 1050, and 950 nm, respectively. Most outcrops are associated to craters in the target regions. They are often found on the inner wall and the ejecta blanket of craters.

Plagioclase outcrops exhibit PAN (purest-anorthosite) like spectra with the clear 1250 nm absorption that was reported by Ohtake et al. (2009) and Yamamoto et al. (2012). Most of them are found at small craters with diameter of <1 km, whereas Ohtake et al. (2009) reported that PAN were found mainly on craters with diameter of >30 km. However, our researched region is placed adjacent or within the Crisium basin. As Yamamoto et al. (2012) suggested, PAN blocks could be excavated from deep region of the highland crust by the Crisium basin impact event. We also confirm an observation by Yamamoto et al. (2012) that olivine outcrops also associate with PAN exposures in this region.

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