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# First Results from LISM on Kaguya

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On the first Japanese Moon first explorer KAGUYA (SELENE) that was launched by an H-IIA rocket on 14 September 2007, three optical mission instruments are installed: the Terrain Camera (TC), the Multi-band Imager (MI), and the Spectral Profiler (SP). These three instruments share structures and electric circuits to reduce mission resource consumption and are collectively called the Lunar Imager/Spectrometer (LISM).

The TC is a push-broom stereoscopic imager with forward-looking and aft-looking optical heads with slant angles of +/- 15 degrees from the nadir vector. The spatial resolution of TC is 10m/pixel from the KAGUYA nominal altitude of 100km. The TC will execute global imaging observation and provide (1) global/local high-contrast mosaicked maps and (2) DTMs for the Moon's entirety with relative height resolution of a few tens of meters or better. The TC products will complement lunar high-resolution topographic maps and contribute to the lunar sciences together with data acquired by past explorers such as Apollo, Luna, Clementine, and Smart-1 as well as future lunar explorers.

The MI is also a push-broom but multiband imager camera with two optical heads for visible range observation and near-infrared range observation. The band assignment is 415, 750, 900, 950 and 1000 nm for visible and 1000, 1050, 1250 and 1550 nm for near infrared. The spatial resolution of visible bands is 20 m, and that of near infrared bands is 62 m from the 100 km. The mission objectives of the MI are to provide global mosaicked maps of geological units with one-order higher resolutions in the visible

and near-infrared ranges Clementine's UV-VIS and NIR camera data.

The SP is a visible - near infrared spectrometer. SP obtains continuous reflectance spectra of the lunar surface for visible to near-infrared range of 500-2600 nm, with a high spectral resolution (6-8 nm) and high spatial resolution of 500m. The primary purpose of the SP is to provide global and regional mineral/rock type distributions on the Moon by obtaining accurate spectral characteristics of the surface. The mineral/rock information will serve as a fundamental database of each geological unit, which will be distinguished by discrete color information of the surface provided by the MI.

The LISM (TC, MI, and SP) acquired the first data on November 3, 2007, in the initial checkout operation period of KAGUYA. We processed the data, and confirmed that LISM had not been damaged during launch and the cruising phase and was functioning properly in orbit around the Moon. The three LISM instruments transitioned to the normal operation phase with 12 other mission instruments on December 21, 2007 after completion of the initial checkout phase. In this presentation, we introduce the LISM initial results and perspectives.