

次期月探査計画セレーネ2のための月面眺望画像分光カメラ (ALIS) 開発状況と科学目的

Advanced Lunar Imaging Spectrometer for the Next Japanese Lunar Mission SELENE-2: Present State and Science Objectives

佐伯 和人^{1*}, 諸田 智克², 大嶽 久志³, 大竹 真紀子³, 杉原 孝充⁴, 本田 親寿⁵

SAIKI, Kazuto^{1*}, MOROTA, Tomokatsu², OTAKE, Hisashi³, OHTAKE, Makiko³, SUGIHARA, Takamitsu⁴, HONDA, Chikatoshi⁵

¹ 大阪大学, ² 名古屋大学, ³ 宇宙航空研究開発機構, ⁴ 海洋研究開発機構, ⁵ 会津大学

¹Osaka Univ., ²Nagoya Univ., ³JAXA, ⁴JAMSTEC, ⁵Univ. Aizu

A future lunar landing mission SELENE-2 is being planned by Japan Aerospace Exploration Agency (JAXA). In the present design, SELENE-2 consists of a lander, a rover, and a communication relay orbiter, but detailed configuration - landing site(s), mission life etc. - is now under investigation. Advanced Lunar Imaging Spectrometer (ALIS) is an imaging spectrometer which we are developing for SELENE-2 lander.

Scientific objectives of ALIS are geological investigation around the landing site by VIS/NIR (Visible and Near Infra-red light) spectroscopy, making of the photometric model of the lunar surface by repeated observation with various photometric conditions, and production of an operation map for the rover to access sampling targets such as ejecta from central peaks. ALIS has been miniaturized in order to reduce weight and electricity consumption. It has a VIS-NIR imaging spectrometer (700-1700 nm with 5 - 10 nm resolution). The spectrometer is composed of an imaging sensor (InGaAs) and a diffraction grating unit. The spectrometers take '1-line spatial resolution' x 'wavelength resolution' image as one shot. Line images are assembled by scanning image on a slit of the spectrometer with rotating ALIS body. We conducted a concept design of new ALIS and computed its thermal model and optical model to confirm its feasibility. The idea of scientific operation also will be presented.

キーワード: 月, リモートセンシング, ハイパースペクトルセンサー, 着陸機

Keywords: the Moon, remote sensing, hyper spectral sensor, lander