

SPACE EXPLORATION SYMPOSIUM (A3)
Moon Exploration – Part 1 (2A)

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JAPANESE MOON LANDER SELENE-2 - STUDY STATUS IN 2011 -

Abstract

Japan Aerospace Exploration Agency (JAXA) considers a moon lander SELENE-2 as one of SELENE follow-on missions. Mission definition of SELENE-2 has completed in 2007. From August 2009 to July 2010, Japanese government has been discussed on nation's lunar exploration strategy and summarized in a report. To meet with Japanese lunar exploration strategy, delta Mission Definition Review was conducted in October, 2010. Concept design of the spacecraft is now undergoing. In this presentation, missions of SELENE-2 are shown together with the present design status of the spacecraft. JAXA launched Kaguya (SELENE) moon orbiter in September, 2007 and the spacecraft was successfully put into moon orbit in October. It observed moon surface or gravity field with 13 instruments and a couple of small satellites till the hard landing in June, 2009. As the next step of moon exploration, a lunar lander SELENE-2 is considered. It lands on the moon surface and performs in-situ scientific observation, environment investigation, and research for future lunar utilization including human activity. At the same time, it demonstrates some key technologies for lunar and planetary exploration such as precise and safe landing, surface mobility and overnight staying. The lander carries laser altimeters, image sensors, landing radars for precise and safe landing. Landing legs and precisely-controlled propulsion system are also developed. The rover is designed so as to travel in wide area and observe featured terrain with scientific instruments. Some instruments require long term observation on the moon surface. We are developing survival technologies for 15-days-long night without radio-isotope energy. Observation instruments are also being developed. Very broadband seismometer, electromagnetic sensors, heat flow meter, multi-band camera, gamma-ray spectrometers, etc. are studied.