

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

Author: Prof. Tatsuaki Hashimoto

Japan Aerospace Exploration Agency (JAXA), Japan, hashimoto.tatsuaki@jaxa.jp

Mr. Takeshi Hoshino

Japan Aerospace Exploration Agency (JAXA), Japan, hoshino.takeshi@jaxa.jp

Dr. Hisashi Otake

Japan Aerospace Exploration Agency (JAXA), Japan, ootake.hisashi@jaxa.jp

Prof. Satoshi Tanaka

Japan Aerospace Exploration Agency (JAXA), Japan, tanaka@planeta.sci.isas.jaxa.jp

Ms. Sachiko Wakabayashi

Japan Aerospace Exploration Agency (JAXA), Japan, wakabayashi.sachiko@jaxa.jp

Dr. Hitoshi Morimoto

Japan Aerospace Exploration Agency (JAXA), Japan, morimoto.hitoshi@jaxa.jp

Mr. Koichi Masuda

Japan Aerospace Exploration Agency (JAXA), Japan, masuda.koichi@jaxa.jp

Dr. Makiko Ohtake

Japan Aerospace Exploration Agency (JAXA), Japan, ohtake.makiko@jaxa.jp

Dr. Masataku Sutoh

Japan Aerospace Exploration Agency (JAXA), Japan, sutoh.masataku@jaxa.jp

Mr. Takanobu Shimada

Japan Aerospace Exploration Agency (JAXA), Japan, shimada.takanobu@jaxa.jp

## JAPANESE LUNAR POLAR EXPLORATION MISSION

**Abstract**

JAXA launched Kaguya (SELENE) moon orbiter in September, 2007 and the spacecraft was successfully put into moon orbit in October. It observed moon surface and 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, lunar landing missions have been 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. Currently, JAXA plans an exploration mission of lunar polar region at the beginning of 2020s, following a small lunar lander SLIM which aims technology demonstration of the precise landing. The purpose of the mission is search and investigation of lunar volatiles such as water ice using a rover. It will be realized with international collaboration. Volatile material under the surface will reveal the history of the solar system. And also, polar region is one of candidates of the next generation human base because of long duration sunlit. Polar region, especially South Pole, is also interesting from the point of view of geological science because there exist some ejecta from South Pole Aitkin basin which contains mantle material. The lander carries image sensors, landing radars for precise and safe landing. Landing legs and precisely-controlled propulsion system are also developed. For future lunar exploration, measurement of radiation, regolith dust, and soil mechanics are also planned. In this presentation, present study status of Japanese moon landing mission is shown.