AOGS 2005

Japanese Long Term Plan for Lunar Exploration

KOHTARO MATSUMOTO[1], NORIMITSU KAMIMORI[1], YOSHISADA TAKIZAWA[2] and MANABU KAKO[2]

[1]*Institute of Space Technology and Aeronautics, JAXA*
[2]*Institute of Space and Astronautical Science, JAXA*

From 1998, as the first step to the space frontier beyond the Earth, Japan started the SELENE project for the moon, as the nearest satellite beyond the Earth. In SELENE, we have planned to study the moon as the science target and to investigate it for the future utilization.

After the NASA new space vision, we are planning to accelerate our scenario to be significant and worthwhile for the world wide exploration t rend to the moon and mars. Ut ilizing our advanced technologies, such as robotics, we would like to cooperate complementary to the world activities, NASA, ESA, Russia, India, and so on. For the human moon exploration, we also would like to join and contribute with our technologies and experiences on ISS-JEM.

From 2001, we have studied Japanese moon lander, SELENE-B, to investigate the moon origin. The very precise and autonomous obstacle detection and avoidance landing technologies were focused as phase-A concept study. In our rough consideration, the SELENE-B landing concept will be effective even for the current new and hottest landing target, that will be the polar region. If we could add the LRO data with the SELENE data, the landing preciseness and reliability of obstacle avoidance will be improved even for the polar region.

In the polar region, the mean temperature is very low, and the temperature difference is also small. Therefore the geological features of the polar region surface might be different from the Surveyor and Apollo landing sites. For the landing, whether the surface is covered by the thick regolith or not, will be very crit ical for the lander leg design. And for the polar region landing, there will be many other differences from the SELENE-B assumed landing site.

In the presentation, our long term lunar exploration plan and the technological difference of the Landing to the required target polar region.

Keywords: Moon; Exploration; Plan; SELENE; Polar

References

[1] K. Matsumoto and etal, IAC-04-IAA.3.6.2.10 (2004).