System Design of SELENE Relay Satellite for Lunar Gravity Field Measurements

Takahiro Iwata [1], Noriyuki Namiki [2]

[1] NASDA, [2] Earth and Planetary Sci., Kyushu Univ.

We report results of the design examination of the SELENE Relay Satellite for selenodesy mission which will be launched in 2003. Four-way Doppler measurements and two-way ranging measurements relayed by the Lunar Polar Orbiting Satellite and the Relay Satellite will be made to determine the precise orbits. Differential VLBI observation will also be made using radio sources on the relay satellite and the lunar surface. The solar array of demanded power supply regulates the size of the Relay Satellite body structure to be 1m length, 1m width, and 0.65m height octagonal prism of about 40kg weight. It is expected that our system enables the highest-precise mapping of the lunar gravity field in global area including the first full gravitational map above the far side of the moon.