

Jupiter magnetosphere explorer by small orbiter~Model payload for uv imaging~

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The Jupiter has been explored red by the Jovian orbiter, Galileo, and flyby observation by Pioneer-10/11, Voyager-1/2, Ulysses, Cassini spacecrafts. The objects of these missions, however, are to investigate the Galilean satellites and the Jovian atmosphere (using the imaging and spectroscopy observation from a distance and the entry probe), so that plasma phenomena in the inner magnetosphere and the ionosphere, such as the inner structure, the magnetic field structure, and the radiation belt, is unknown yet for lack of the near-Jupiter explorer. The Solar Powered Sail Mission has a plan to enter the small satellite into the polar orbit around the Jupiter, and to examine the first observation of the inner Jovian magnetosphere. This plan also plays an important role in the development of future Jovian global explorer missions.

In this mission, the first priority is to observe the plasma phenomena in the strongest magnetized planetary magnetosphere from the polar orbit near Jupiter body with the global and high time resolution. For example, the important observation are 1) the global magnetic field of the near-Jupiter, 2) the direct measurements of the acceleration process over the polar ionosphere, and 3) the aurora and lightening measurements with the high time resolution. The observations lead us to the investigation of 1) the coupling between the magnetosphere and the ionosphere in the Jovian-type planetary environments, and 2) the powerful plasma acceleration mechanism in the solar system.

The current model payloads are 1) in-situ measurement, 2) remote sensing, 3) common digital progressing, and 4) entry probe to the atmosphere. In this paper, on the subject of the remote sensing observation, the science target, motivation, and the model payload are described.