

Science Operation Concept based on "the MDP scheme" for BepiColombo/MMO - Update

Yasumasa Kasaba[1]; Takeshi Takashima[2]
[1] Tohoku Univ.; [2] ISAS/JAXA

BepiColombo / Mercury Magnetospheric Orbiter (MMO) is and mostly dedicated to the first detailed study of magnetic field, waves, and particle environment of the planet Mercury. The MMO payload consists of 5 instruments / instrument packages, wide-range observational capabilities for charged particles and energetic neutral atoms, magnetic field, electric field / plasma waves / radio waves, dust, and exospheric constituents. MGF (Magnetic Field Investigation) for magnetic field with 2 sub instruments, MPPE (Mercury Plasma Particle Experiment) for plasma and neutral particles with 7 sub instruments, and PWI (Plasma Wave Investigation) for electric field, plasma waves, and radio waves with 7 sub instruments. MSASI (Mercury Sodium Atmosphere Spectral Imager), an imaging system is also included for the study of the sodium exosphere. MDM (Mercury Dust Monitor) covers the dust information around Mercury and the inner heliosphere.

In this talk, this science operation concept based on "the MDP scheme" is presented. It is based on the conceptual, scientific, and technological studies in JAXA and MMO colleagues, including the discussions in the MMO Science Operation Working Group, which is a part of the MMO Science Sub Working Group (MMO-SWG). Under this concept, all payload packages will perform integrated in-situ measurements of particles and fields in the magnetosphere of Mercury, under the control of by MDP (Mission Data Processor). In April-June 2009, we made the first integration test of this system and established the lower layer connections. From now to the end of 2010, we will design and develop all software which includes autonomous control and data reduction aboard the spacecraft, such as the redundancy, emergent controls, triggering system, etc.

YK also make the short presentation of the similar conceptual design for the Exceed mission.