

BepiColombo MMO status update

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BepiColombo has been defined as the ESA-JAXA joint mission to Mercury with the aim to understand the process of planetary formation and evolution in the hottest part of the proto-planetary nebula as well as to understand similarities and differences between the magnetospheres of the Mercury and the Earth.

The baseline mission consists of two spacecraft: the Mercury Planetary Orbiter (MPO) and the Mercury Magnetospheric Orbiter (MMO). The two orbiters will be launched together on one Ariane5 in 2014 and arrived at Mercury in 2020. The orbits of both of the two orbiters are polar orbit. Periapsis and apoapsis height of MMO are 400km and 12,000km with 9.3 hours orbital period, while those for MPO are 400km and 1,500km with 2.3 hours orbital period. Nominal observation period at Mercury is designed as 1 Earth year with extension of another 1 Earth year.

JAXA is responsible for development and operation of MMO while ESA is responsible for all the other part of the mission. The main objectives of MMO are to study Mercury's magnetic field and plasma environment around Mercury. MMO is designed as a spin-stabilized spacecraft and on-boards complete plasma packages.

Engineering Model (EM), Mechanical Test Model (MTM), Thermal Test Model (TTM) have been developed. MMO stand alone MTM test was finished. 1 Solar Constant (SC) and Infrared Radiation (IR) TTM test were finished. EM test is ongoing. 10SC TTM test is scheduled in this year at ESA/ESTEC. Flight Model (FM) manufacturing will start in this year. The latest status of MMO will be presented.

Keywords: Mercury, Exploration, International collaboration, Magnetic Field, Magnetosphere