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BepiColombo Euro-Japan Joint mission to Mercury: MMO Project Status update

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BepiColombo is a 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 Mercury and Earth.

The baseline mission consists of two spacecraft, i.e. the Mercury Planetary Orbiter (MPO) and the Mercury Magnetospheric Orbiter (MMO). JAXA is responsible for the development and operation of MMO, while ESA is responsible for the development and operation of MPO as well as the launch, transport, and the insertion of two spacecraft into their dedicated orbits.

MMO is designed as a spin-stabilized spacecraft to be placed in a 400 km x 12000 km polar orbit. The spacecraft will accommodate instruments mostly dedicated to the study of the magnetic field, waves, and particles near Mercury. While MPO is designed as a 3-axis stabilized spacecraft to be placed in a 400km x 1500 km polar orbit. Both spacecraft will be in same orbital plane.

Critical Design Review(CDR) for MMO project is completed in November 2011. Electrical Interface Check (EIC)/ Mechanical Interface Check (MIC) for MMO has been completed in January 2012. MMO stand alone FM AIV is started from September 2012. MMO Mechanical Test Model(MTM) has been transported to ESA/ESTEC on November 2011 and attended for the stack (MCS) level mechanical test which was completed in last August.

7th BepiColombo science working team (SWT) meeting, which discusses science related matters, was held on September 2012 at Stockholm. In this paper, we will report the latest information of BepiColommbo MMO project status.

Keywords: Mercury, Planetary Exploration, International Collaboration