

## 水星磁気圏探査機が目指す科学 —メッセンジャーからベピ・コロomboへ—

# 村上 豪 [1]; 藤本 正樹 [2]; BepiColombo MMO プロジェクトチーム 早川 基 [3]  
[1] ISAS/JAXA; [2] 宇宙研; [3] -

## Science goals of Mercury Magnetospheric Orbiter -MESSENGER to BepiColombo-

# Go Murakami[1]; Masaki Fujimoto[2]; HAYAKAWA, Hajime BepiColombo MMO Project team[3]  
[1] ISAS/JAXA; [2] ISAS, JAXA; [3] -

The first Mercury orbiter MESSENGER successfully entered into its orbit in 2011 and completed its mission in 2015. MESSENGER provided us many surprising discoveries and issues. For example, the magnetometer measurements revealed that the planetary magnetic field has a northward offset by 0.2 Rm. It also found that Mercury's magnetosphere is highly dynamic because of its small magnetic field and proximity of the Sun. Furthermore, high energy electrons up to ~200 keV were detected inside the magnetosphere and short periodicity (several minutes) of events were observed. The evidence of field-aligned current was also found by the magnetometer observation. These outstanding discoveries, however, still remains as open issues due to some limitations of instruments onboard MESSENGER and its extended elliptical orbit with apherm in southern hemisphere. The next Mercury exploration project BepiColombo will address these open issues. BepiColombo is an ESA-JAXA joint mission to Mercury with the aim to understand the process of planetary formation and evolution 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). The two orbiters will be launched in 2018 by an Ariane-5 and arrive at Mercury in 2024. The simultaneous observations by two spacecraft will solve the remaining questions from MESSENGER. JAXA is responsible for the development and operations of MMO, and it is almost ready for launch. Therefore, now we can concentrate on preparing the science operations plans. Here we present a summary of MESSENGER results, remaining issues which should be addressed by BepiColombo, and science operations strategies and plans of MMO.