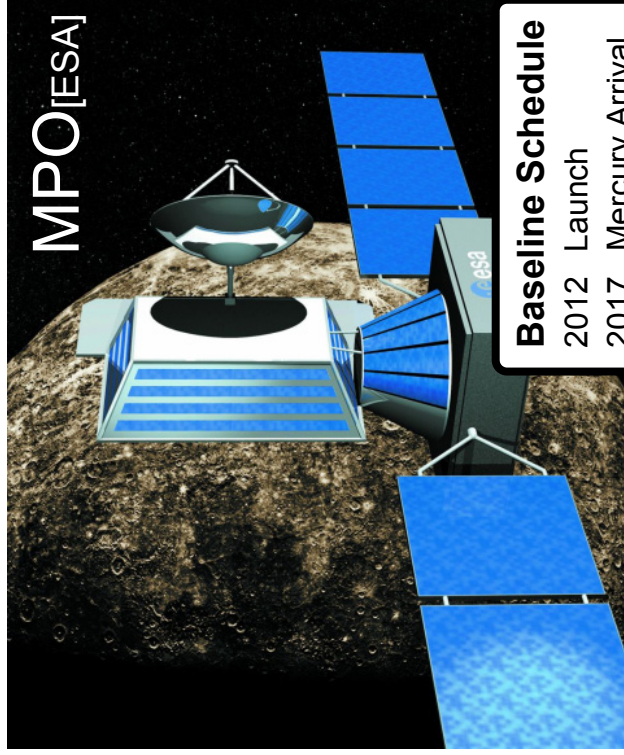




# BepiColombo: Mission to Mercury



MPO [ESA]

## Baseline Schedule

- 2012 Launch
- 2017 Mercury Arrival

## Complete study of Mercury

The innermost planet Mercury was already known in the ancient days, but it was visited only by the Mariner 10 spacecraft 3 decades ago. Mercury is still “unknown” and provides important keys to the solar system sciences.

### History of Inner Solar System

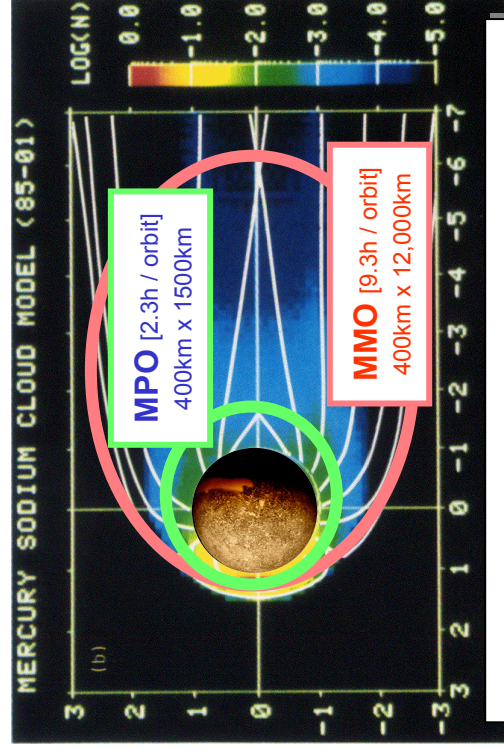
Mercury’s high density and composition tell us the initial stage of the innermost solar system.

### Origin & Structure of Magnetic Field

Why do planets have magnetic field? Mercury provides the first chance to compare the magnetic field with Earth.

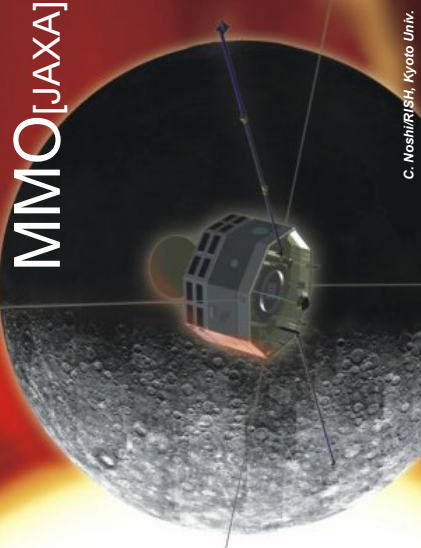
### Magnetosphere: Similar or Different ?

Mercury’s special magnetosphere without thick atmosphere will provide another view of the planetary magnetosphere.



Orbit / Mercury Magnetosphere (model)

Mercury Project Office: <http://www.stp.isas.jaxa.jp/mercury/>



MMO [JAXA]

C. NISHI/RISH, Kyoto Univ.

Design & Development by JAXA

**MMO** (Mercury Magnetospheric Orbiter)

- High temperature materials & technologies.
- Best scientific instruments from Japan-Euro collaboration.

## MMO Science Team

- MGF** **Magnetic Field Investigation**  
studies magnetic field from the planet, magnetosphere, and interplanetary solar wind.
- MPPE** **Mercury Plasma Particle Experiment**  
studies plasma & neutral particles from the planet, magnetosphere, and interplanetary solar wind.
- PWI** **Plasma Wave Investigation**  
studies electric field, electromagnetic waves, and radio waves from magnetosphere and solar wind.
- MSASI** **Sodium Atmosphere Spectral Imager**  
studies thin sodium atmosphere of Mercury.
- MDM** **Mercury Dust Monitor**  
studies dust particle from the planet and interplanetary & interstellar space.

## First Full-Scale Euro-Japan joint mission

Two orbiters (MPO & MMO) will observe Mercury simultaneously with instruments developed by Euro-Japan joint research teams.

### MMO (Mercury Magnetospheric Orbiter)

is a spin-stabilized spacecraft. The MMO will study magnetic field, atmosphere, magnetosphere, and inner interplanetary space. Comparison of magnetic field & Magnetosphere with Earth will provide the new vision for space physics.

### MPO (Mercury Planetary Orbiter)

is a three-axis stabilized spacecraft. The MPO will study geology, composition, inner structure and the exosphere. Abnormal structure and composition of Mercury will provide the keys for the planetary formation in the inner solar system.