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Exploration of planetary magnetospheres

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The purpose of this paper is to discuss the future exploration of planetary magnetospheres. The objectives of exploration related to planetary magnetosphere and solar system plasma physics are to clarify the plasma environments surrounding planets and to establish a base in universal space physics. The Mercury exploration project BepiColombo is a joint mission by JAXA and ESA. The Mercury Magnetospheric Orbiter (MMO) has been being developed to explore the Mercury's magnetosphere and inner heliosphere. In addition, we are working on observation equipment for the Mercury Planetary Orbiter (MPO). Mercury's magnetosphere has an unknown parameter region. Precise observations will be of great value in the context of universal space plasma physics. A martian atmosphere and plasma observation mission will help clarify atmospheric loss on Mars, an objective of the Nozomi mission that was not completed successfully. The Jovian magnetosphere is like an immense particle accelerator and a target close to astronomy. In situ observation of the Jovian magnetosphere has a significant scientific value in that it will obtain precise data on the acceleration process up to the maximum energy. Before that there will be a formation observation project to survey the Earth's magnetosphere. A series of small satellites will also continuously probe the planetary magnetospheres.

Keywords: Planetary magnetospheres, Exploration