

Planetary Explorations of Japan: Past, current, and future

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Japan's exploration of the moon and the planets began in 1990 with lunar-orbiting "HITEN" and "HAGOROMO" which were followed by "PLANET-B NOZOMI" to Mars (launched in 1998) and by another lunar orbiter "KAGUYA" (2007).

Other solar-system explorations include "SAKIGAKE" and "PLANET-A SUISEI" both of which flew to Halley's comet in 1985, plus "HAYABUSA" (launched in 2003) asteroidal exploration. Altogether, Japan's solar-system exploration has been done approximately every 5 years. We now have PLANET-C Venus exploration almost ready to go (2010).

In coming years, BepiColombo Mercury exploration (2014), SELENE-series lunar explorations and HAYABUSA-series asteroidal explorations are being developed or are in plan. Japanese researchers are also working hard to be a part of "International Comprehensive Exploration Mission to the Jovian System" with a magnetosphere orbiter.

The PLANET series resulted in one success (A = "SUISEI") and one failure (B = "NOZOMI"). The PLANET-C Venus exploration mission team are working hard to lead the project to a full success (the project is now in the final modifications and tests phase). On the other hand, people are motivated in both scientific and technological aspects to re-challenge a Mars exploration. According to the Solar-System Exploration Road Map (issued in May 2007), "Study of surface environment and the interior structure of Mars with landers and penetrators", "Study of Mars meteorology", and "Study of escaping atmosphere from Mars" are separately described. Now, a working group has been formed to combine all these studies into one mission for late 2010's.

In this presentation, current status of Japan's planetary exploration (which is becoming more active than before) and its position in the international programs will be discussed.