

Lunar and planetary explorations in a coming decade: Summary of 4 years and problems remained

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Future Planetary Exploration Working Group of Japanese Planetary Science Society is discussing next generation of planetary explorations that need to be strongly supported by planetary science community. We started "Planetary Exploration in a Coming Decade" activity in 2010 aiming to organize a new mission to be launched between 2017 and 2027. The first stage of the activity is ending in March, 2011. A summary of the first stage was reported by 5 panels; (1) terrestrial solid planets, (2) terrestrial atmosphere and magnetosphere, (3) minor body, (4) Jovian planets, icy satellites, and exoplanets, and (5) astrobiology. Each panel received proposals regarding "top sciences" of each category from the community in the summer of 2010. On September 10 in 2010, an open meeting was held at Kobe University to discuss top sciences among the community of planetary scientists. From the summer of 2011, the second stage began. Proposals for new mission and instruments were submitted by 13 groups and were advised by the second-stage committee not only to improve the proposal, but also to raise and develop exploration groups. In 2012 May, the third stage started. The main purpose of the third stage is to polish up the proposals in the view of feasibility. In September 14 and 15, 2012, we held a workshop to integrate individual proposals into a few comprehensive mission plans, such as in-situ chronology and interior exploration of the moons and planets, primitive small body exploration, and search of life on Mars. The mission concepts of these comprehensive mission plans are now being discussed for later evaluation by the third stage committee. This activity will be closing in the summer of 2014, and the final report will be published in October.

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