

Design of Planetary Data Archive

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Introduction: Various planetary science missions are being planned (such as Apophis Rendez Mission) and are in progress (Korea Pathfinder Lunar Orbiter and Commercial Lunar Payload Services) in Korea. The Korea Astronomy and Space Science Institute (KASI) is leading planetary science research in Korea, and plans to build the Planetary Data Archive (PDA) that can collect, process, manage, and distribute the planetary science data produced in the near future.

Concept of PDA: The PDA is a scientific archive for data from Korean planetary missions and other projects engaged in the Solar System exploration. The PDA contains not only observational data of solar system such as the moon, planets, and asteroids, but also research models, model outputs, software libraries, and documentation (Figure 1: PDA resources).

KASI aims to lay the foundation for maximizing the utilization of data through data policy, data standardization, big data analysis (artificial intelligence/machine learning), and Application Programming Interfaces through the PDA.

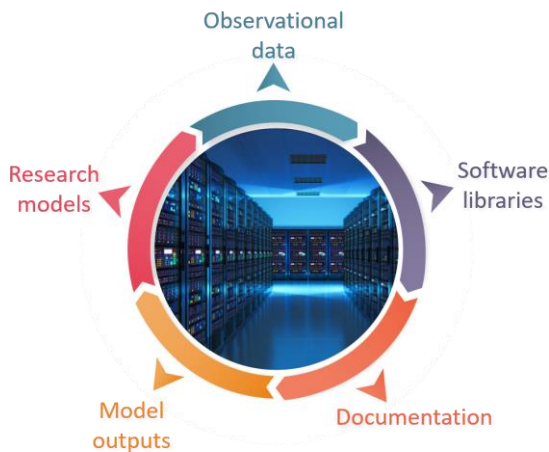


Figure 1: PDA resources

PDA Architecture: We plan to compose the PDA into three parts: hardware system, software platform and data integration (Figure 2: PDA Architecture). The Software Platform is based on the data pipeline modules and consists of data analysis solution and distribu-

tion service. The Hardware System includes servers running software and services, data storage, and network equipments.

The Data Integration is a significant part of the PDA and provides various aspects for data utilization. The PDA will support the two formats of the Planetary Data System (i.e., PDS3 and PDS4) for scientific data sets. For data users, the PDA will provide python libraries and tools for data handling, and models as well as a data search engine.

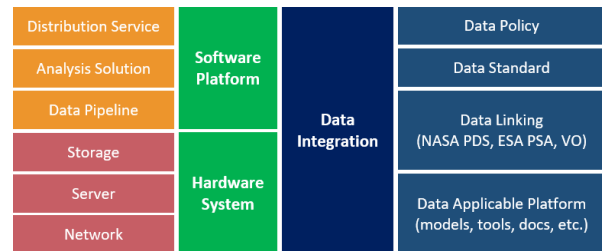


Figure 2: PDA Architecture

Conclusion: We expect that PDA will contribute to innovative research and scientific discovery by providing a platform for integrated management and utilization of planetary science data to be generated in the future.