Increasing the Discoverability of Planetary Data System (PDS) Archives Across the Planetary Data Ecosystem. T. P. McClanahan[1], D. M. H. Baker[1], M. E. Banks[1], D. Crichton[2], T. Morgan[1], J. Padams[2], [1]NASA Goddard Space Flight Center, Greenbelt, MD (timothy.p.mcclanahan@nasa.gov), [2]Jet Propulsion Laboratory, Pasadena, CA,

Introduction:

With the recommendations of the 2017 Planetary Data System Roadmap Study, which were echoed again in the Planetary Data Ecosystem Internal Review Board Report (PDE IRB) report, the Planetary Data System has made steady progress in improving its infrastructure and data services [1, 2, 3]. To help guide this ongoing effort the PDS has engaged its community of data providers, archivists and end users to understand their needs and future requirements. The recommendations specifically call on the PDS to improve its user support and data services with the goal of enhancing the access, discoverability, and usability of planetary data archives across the PDS. Such a scalable system will also enhance the findability, accessibility and usability of planetary data across not only the PDS, but also across international planetary mission archives [4, 5]. This presentation reviews the PDS background, current state of the PDS and reviews its designs for improving the discoverability and usability of its archives.

Increasing Discoverability from Planetary Holdings: Increasing Search Integration:

To start, the PDS is now improving its archive registry and search architecture, which is at the core of the PDS data services effort.

It is critical that the PDS move towards unifying the Discipline Node search engines in order to drive a more seamless user experience. This includes homogenizing the results from a search, across the PDS node interfaces.

To achieve these goals, the PDS will build upon its PDS4 investment. These steps include:

1. Expanding the PDS4 information model to derive consistent common and discipline queries from the model.
2. Supporting dynamic metadata to allow different types of searching including searching at the file level.
3. Unify PDS web services.
4. Supporting cross-node, cross-product searching using modern search engines
5. Developing and use common APIs for searching, accessing and retrieving information between systems.
6. Supporting integration across search engines including parameter passing so search tools will be automatically configured.
7. Continuing to build and register archive support pages to help users boot strap into mission archives.
8. Developing a next generation web design leveraging PDS4 metadata, common data services, and integration of search across PDS in order to improve the user experience.
9. Investigate the deployment of data and data services into the cloud.

Increase Access and Computational Support for Planetary Data Analysis

The PDS is also exploiting new technical capabilities, achieved from its use of cloud computing, machine learning libraries, open source, and other data intensive software services to efficiently access the wealth of planetary data in the PDS. These capabilities will improve user access to services and to advanced computing which will be especially important to analyze large datasets.

References

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[3] Milazzo, M. et al (2022) *53rd LPSC* #2777
[4] Crichton, D. et al. (2019) 4th Planetary Data Workshop, Abstract #7105. [5] Crichton, D. et al. (2018) AGU Fall Meeting, Abstract # IN11D-0656.