

IPDA: a standards initiative for building compatible archives

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Abstract

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Abstract

Scientific community in the U.S. decided in the eighties to setup a data system for planetary related data (ground-based, laboratory data, space data), the Planetary Data System (PDS).

Scientific community in Europe got acquainted to the PDS-Standard, as most data originated from NASA missions; ESA adopted the PDS-Standard as the base standard for its archival system, the Planetary Science Archive (PSA).

NASA/PDS and ESA/PSA have worked closely together to coordinate archiving activities for current missions (e.g., Huygens, Mars Express, Venus Express). This has led to ESA PSA/NASA PDS collaborating on an international strategy for planetary science data. In 2005, the PSA and PDS initiated an effort to develop common interoperability standards for accessing and distributing data internationally from national planetary science archives; this includes

- a *protocol* for finding, accessing and retrieving science products from across agency systems
- common semantics for discipline-specific queries

The plan is that joint missions in the future will use the interoperability protocol rather than submitting and archiving data from another agency in a local system.

Other space agencies need to setup similar archival systems, including standards, tools, services, etc in the coming years to serve their scientific community. Co-operations make it necessary to minimize the differences between systems and standards, e.g. Rosetta (NASA,ESA),

BepiColombo (ESA,JAXA), Chandrayaan (ISRO,ESA).

World-wide scientific communities are willing to have standardized archival systems:

- They want to archive data with minimum effort
- Demand for new, sophisticated services and tools
- Concerns in accepting data standards fully controlled by sister agency

SOLUTION: internationalize the planetary data archival efforts.

In 2006, the International Planetary Data Alliance was established which includes participation from major space agencies around the world.

The main objective of IPDA is the enhancement of the research activities in the worldwide planetary community.

The IPDA as a whole shall propose and adopt standards for planetary science data archiving, exchange and access, and will implement accompanying tools in the areas, such as, however not restricted to:

- long-term data preservation
- data modeling
- data dictionary management
- interoperability
- data generation, validation, access, exchange, visualization and mining
- services registry
- The IPDA has two core goals:
 - Developing international standards for data archiving

- • Developing interoperability protocols for allowing data sharing among planetary data systems.
- The data standards within the IPDA, including the data models and derived dictionaries, are based on the NASA Planetary Data System (PDS)_that is the de-facto standard for all planetary data at the time of the IPDA founding.