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The International Planetary Data Alliance

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Abstract

The International Planetary Data Alliance (IPDA) is an international collaboration of space agencies with a mission of providing access to scientific data returned from solar system missions archived at international data centers. In order to improve access and share scientific data, the IPDA was founded to develop data and software standards. The IPDA has focused on promoting standards that drive common methods for collecting and describing planetary science data. An initial starting point for developing such a standard has been the internationalization of NASA's Planetary Data System (PDS) standard, which has become the de-facto archival data standard. Given the demands of supporting more capable and international missions and collaborations, the Planetary Data System, in partnership with the IPDA, has embarked on developing a next generation data standard and system called PDS4. Significant progress has been made on PDS4 and early adopters are beginning to use the emerging standard on new planetary science missions.

1. Introduction

The International Planetary Data Alliance (IPDA) is an international collaboration of space agencies with a mission of providing access to scientific data returned from solar system missions archived at international data centers. In order to improve access and share scientific data, the IPDA was founded to develop data and software standards. The IPDA has focused on promoting standards that drive common methods for collecting and describing planetary science data. An initial starting point for developing such a standard has been the internationalization of NASA's Planetary Data System (PDS) standard, which has become the de-facto archival data standard. Given the demands of supporting more capable and international missions and collaborations, the Planetary Data System, in partnership with the IPDA, has embarked on developing a next generation data standard and system called PDS4. Significant progress has been made on PDS4 and early adopters are beginning to use the emerging standard on new planetary science missions.

2. History of the IPDA

The International Planetary Data Alliance (IPDA) arose out of a working group established in 2005 by NASA and ESA to explore greater interoperability between ESA's Planetary Science Archive and NASA's Planetary Data System. An initial starting point for improving interoperability was NASA's Planetary Data System (PDS) standards that the Planetary Science Archive adopted. The goal of this effort was to move the PDS standards towards internationalization and to improve the interoperability between systems through the use of standard software protocols for data sharing.

After an initial pilot activity, it was recognized that the effort should expand and include other groups developing planetary science archives. In November 2006, the International Planetary Data Alliance (IPDA) was founded and held its inaugural meeting at ESA/ESTEC. At this time, it was recognized that the IPDA should establish a Steering Committee of members actively participating in the

design, development and oversight of planetary science archives. Given the limited funding, the IPDA was scoped to focus on improving the internationalization of the PDS data standards and developing mechanisms to link systems together. In order to ensure greater conformance towards building homogeneous planetary science archives for future missions, a series of projects were then initiated to support review and definition of these standards, leveraging and coordinating existing efforts already underway at agencies,.

In 2008, the IPDA was recognized by COSPAR as the official body for definition of planetary science archive standard. Over the past four years, the IPDA has continued to hold annual meetings, execute small projects, and influence agency archiving efforts towards the development of compatible archives. At present, the IPDA is now heavily involved in review and definition of the next generation planetary science standards, PDS4. The purpose is to ensure that these standards serve the international planetary science needs for future data providers and users. Furthermore, the IPDA is developing both standards and implementing those standards in their emergent system to ensure that archives can be linked together to improve access for the world-wide science community. The IPDA has made significant progress on limited resources, leveraging existing efforts and capabilities, to ensure that archive development among the agencies is coordinated. IPDA is today represented by space agencies from USA, ESA, France, Japan, China, Germany, Russia, UK, India, Italy and is growing up regularly, to include soon Canada, Poland, Finland, and Armenia.

3. Summary and Conclusions

The IPDA has grown significantly since its first meetings back in November 2006. Through the collaboration with the PDS, an emerging standard, based on PDS4, is being realized. Significant effort has been put in place to validate PDS4 as it has matured and the first implementations for missions have begun.

Over the next year, the PDS and IPDA will work together to get PDS4 ready for wider international use. We anticipate a growing number of beta tests that will bring in the international community and allow for feedback that will help improve the implementation. Systems built around PDS4 will continuing to roll out, particularly from the Planetary Data System which will begin taking advantage of data products captured in the PDS4 format in order to roll out improved services for data search and access.

The collaborations of IPDA, PDS, and the international community couple with executing focused projects is proving to be an excellent model for bringing the world-wide planetary archives together into an interoperable system that will serve as a model for sharing data for years to come.

References

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