

PDS4 Mission Needs Assessment

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Introduction

- Reta Beebe assigned to review PDS Discipline Node reports to provide an outline for early mission needs for PDS4
- Set up the Data Suppliers' Working Group (DSWG)
 - Ed Guinness, Steve Joy, Lyle Huber to develop a plan to identify needs led by Reta (August 2010 MC F2F)
- Put together a set of specific PDS4 archiving needs for three missions – LADEE, MAVEN, & Phobos-SRM.
- Drivers Identified by the DSWG
 - data object types used by the types of instruments on these missions
 - the timeline with when the missions need the information
- Presented to the MC in November 2010 & March 2011

Considerations

- Upcoming Missions
- Types of Instruments
- Types of Products
- Approximate Start of Product Design
- Approximate Delivery Date to PDS
- Tool Needs, etc

Results (LADEE)

Mission	Instruments	Product Types	Product Design Start Date (Est)	Launch Date	PDS Product Ingestion Date	PDS4 Project Alignment	Data Supplier Document & Tool Needs
LADEE	Neutral Mass Spectrometer (NMS) Dust Dector (LDEX) Ultraviolet Spectrometer (UVS) Ancillary Data	ASCII Tables ASCII Tables Tables/Spectra Documents SPICE? Browse Products	Early 2012	May 2013	Orbit insertion + 6 months	2011 Operational Deployment for PDS4 will sync with Product Design start date.	Documentation: -Concepts document -User guide/tutorial /DPH -Standards Ref – -Data Dictionary Tools: -Create local data dictionary -Label design (modify generic schema into a specific one and generate label template) -Label validation -Validation tool to test that the label correctly describes the data

Results (MAVEN)

Mission	Instruments	Product Types	Product Design Start Date (Est)	Launch Date	PDS Product Ingestion Date	PDS4 Project Alignment	Data Supplier Document & Tool Needs
MAVEN	<p>Mass Spectrometer (NGIMS)</p> <p>Ultraviolet Spectrometer (IUVS)</p> <p>6 field & particles instruments (package)</p> <p>Ancillary Data</p>	<p>ASCII Tables</p> <p>FITS files</p> <p>Combination of CDF, ASCII Tables</p> <p>Documents SPICE? Browse Products</p>	<p>SIS in Progress; design in late 2011/early 2012</p>	<p>November 2013</p>	<p>Six months after orbit insertion</p>	<p>2011 Operational Deployment for PDS4 will sync with Product Design start date.</p>	<p>Documentation:</p> <ul style="list-style-type: none"> -Concepts document -User guide/tutorial /DPH -Standards Ref – -Data Dictionary <p>Tools:</p> <ul style="list-style-type: none"> -Create local data dictionary -Label design (modify generic schema into a specific one and generate label template) -Label validation -Validation tool to test that the label correctly describes the data

Results (Phobos-SRM)

Mission	Instruments	Product Types	Product Design Start Date (Est)	Launch Date	PDS Product Ingestion Date	PDS4 Project Alignment	Data Supplier Document & Tool Needs
Phobos-Grunt	TV System (TVs)	FITS files ASCII tables	Working on a pipeline and sample dataset	Dec 2011	Plan to prepare the pipeline in advance to be ready to release the data almost immediately after the acquisition to make the data available for the landing site selection	PDS is already working with Phobos and will provide documents on PDS4 to the team when ready.	<ol style="list-style-type: none"> 1. Concepts Manual 2. Observation Data format descriptions (a subset of the full standards reference) 3. Mission dictionary creation interface definition 4. Quick & Dirty local dictionary creation tool 5. A working set of example schemas (dictionary schemas, generic schemas, derived schemas) to use in learning XML and XML Schema.
	Gamma ray Spectrometer (GSP) Neutron Spectrometer (NSP) Laser TOF Mass Spectrometer (MSS) Seismometer (SSM) Long-Wave Penetrating Radar (LWR)				Archived not in PDS but in RPDA (Russian Planetary Data Archive).		

Results (EXOMARS)

Mission	Instruments	Product Types	Product Design Start Date (Est)	Launch Date	PDS Product Ingestion Date	PDS4 Project Alignment	Data Supplier Document & Tool Needs
EXOMARS TRACE GAS ORBITER	<p>Mars Atmospheric Trace Molecule Occultation Spectrometer (MATMOS) Wennberg/Caltech</p> <p>High-resolution solar occultation and nadir spectrometer (SOIR/NOMAD) Vandaele/Belgium</p> <p>ExoMars Climate Sounder (EMCS) Schofield/JPL</p> <p>High-resolution Stereo Color Imager (HiSCI) McEwen/U of Ariz.</p> <p>Mars Atmospheric Global Imaging Experiment (MAGIE) Cantor/Malin SSS</p> <p>Ancillary Data</p>	<p>Table</p> <p>?? Table, images, cubes??</p> <p>Table/like MRO</p> <p>Images/cubes HiRise</p> <p>Images Malin</p>	2013	Jan or Feb 2016	May 2017	PDS4 development will not be impacted	Documentation and tool support will be required

Summary

- The mission drivers are the start dates for product design.
- Initial data product support required for a few simple product types (ASCII tables, FITS tables, etc).
- Actual ingestion will not occur until early 2013.
 - However, short cruise time of LADEE makes it a challenge. Planning is underway.
- Validation tools along with design assistance to create the products are important.
- Phobos-SRM considered, but instrument needs are still to be analyzed and captured.
- **Plan:** Keep PDS4 deployments scoped to support LADEE, MAVEN and Phobos-SMR first