Planetary Data System

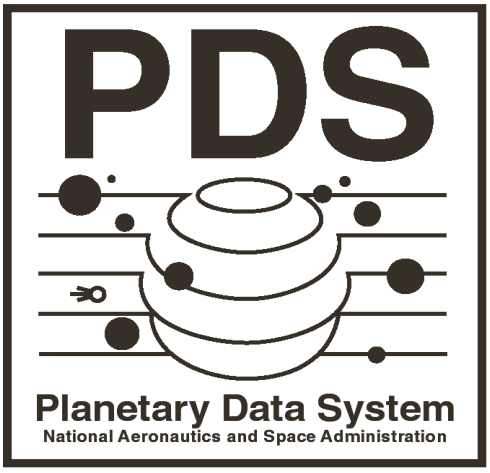
PDS Home Page

User Interface Use Cases

DRAFT

March 7, 2007

Version 0.20070307



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CHANGE LOG

Revision	Date	Description	Author
Start Draft	2006–08–15	First Draft	E. Law
1	2006–08–21	Added scenarios (existing & new)	M. Rose
2	2006–08–22	Added additional use cases and scenarios	E. Law
3	2006–08–24	Reformatted to use styles	M. Rose
4	2006–09–01	Added more information on roles, reformatted use-cases to be easier to follow, added requirement references	M. Rose, E. Law
5	2006–09–08	Added use case map. Cleaned up formatting. Added more details to some use cases. Added requirements matrix. Combined existing and new use cases, since the distinction no longer made sense.	M. Rose
6	2006–12–19	Incorporated Sean Hardman's comments. Added Announcement, Archive Standards, Interoperability and ROSES DAP use cases.	E. Law
7	2007–02–02	Reorganized use cases according to feedback from PDS UI Working Group. Removed traceability matrix (temporarily) in order to replace it with a bidirectional matrix, as suggested by M. Gordon.	M. Rose
8	2007–02–14	Incorporated comments from M. Gordon and T. King, and comments from 02–08 telecon; clarified that the focus of the document is the PDS Home Page.	M. Rose
9	2007–02–28	Removed use case 32, and expanded scope of 16, based on feedback from UI Working Group.	M. Rose
10	2007–03–07	Renumbered use cases, per request by UI Working Group.	M. Rose

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1 Introduction

The purpose of this document is to capture the use cases for the PDS Home Page. These use scenarios will be used to aid formulation of the PDS home website requirements and may guide the redesign of other PDS websites.

Note: *PDS Home Page* and *Home Page* are used within this document to describe the contents and capabilities of the entire web site located at http://pds.nasa.gov.

The use cases are grouped into several categories. This document is limited to the PDS Home Page capabilities that are needed to support the tasks.

- *Finding Data* – Searching for and navigating to desired data within any of the PDS nodes.
- *Using PDS Data* – Interpreting or manipulating PDS-format data, or finding tools and information necessary to interpret or manipulate the data.
- *Archiving with the PDS* – Planning for archiving and preparing data for archiving.
- *Interacting with the PDS* – Getting help, and keeping informed about new data, tools, and documents.
- *External Capabilities* – Finding links to sites and applications external to the PDS that are commonly needed by users of the PDS.

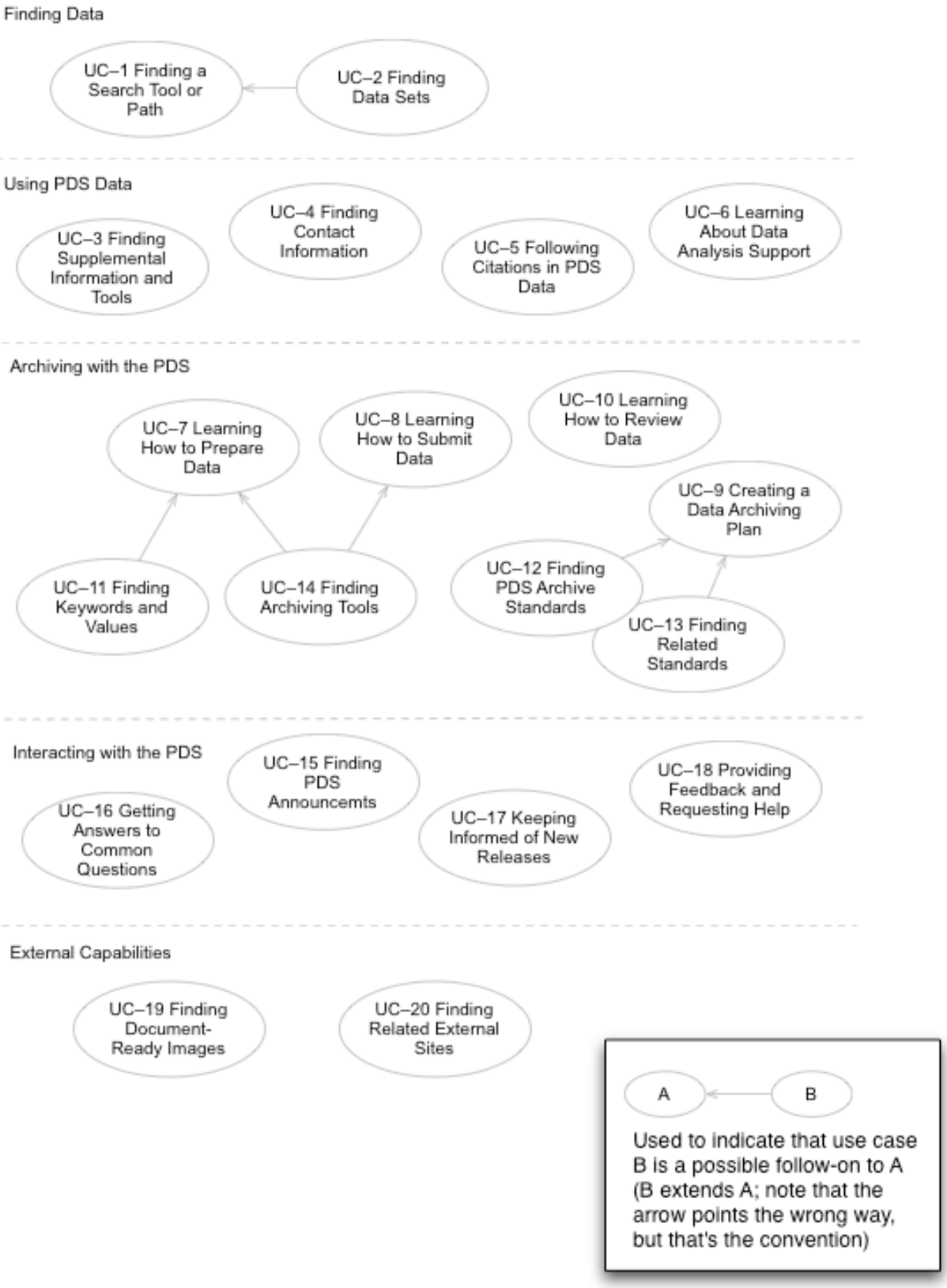
2 Roles

Users of the PDS Home Page play a variety of different roles. Use cases described in this document are performed by one or more of these roles:

Data Provider	Someone who prepares data for archiving within the PDS, usually a member of a mission instrument team or a staff member of a science discipline node.
Researcher	A scientist who uses the PDS to retrieve data for scientific analysis.
Proposer	A scientist who wants to create a proposal for a mission instrument or data analysis.
Educator	A teacher or adviser who either uses the PDS to create educational materials or advises students in the use of the PDS for research.
Student	A student, at any level, who uses the PDS and data within the PDS to gain knowledge or aid in research. Usually, students will be undergraduate level or higher.
PDS Curator	A staff member of a PDS Node who is responsible for accepting data for archiving or maintaining data archives in the PDS.
PDS Node Manager	The manager of a PDS node.
Data Reviewer	A scientist who is reviewing a data set or volume for accuracy, organization, and relevance prior to archiving the data into the PDS at some PDS Node.
Member of the Public	A member of the general public who uses the PDS to gain knowledge or find interesting images. They may find their way into the PDS through the use of a search engine or by following a link from the NASA web site.
NASA Management User	A member of NASA management who uses the PDS to gain knowledge and to monitor PDS activities.
International Archivist	A staff member of an International Agency who is responsible for preparing data for or maintaining PDS compliant data archives.

3 Use Case Map

This map shows the relationships between the use cases considered in this document. Closely related use-cases are indicated by overlapping them.


Finding Data
UC–1 Finding a Search Tool or Path
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External Capabilities
UC–19 Finding Document-Ready Images
UC–20 Finding Related External Sites
A
B
Used to indicate that use case B is a possible follow-on to A (B extends A; note that the arrow points the wrong way, but that's the convention)

4 Use Cases

This section describes those use cases used by the roles identified earlier. Information in the notes for each use case describes whether the use case is currently supported well by the existing web interface of the PDS Home Page.

4.1 Finding Data

UC–1 Finding a Search Tool or Path

Roles: Researchers, Members of the Public, Academics and Students

Originally: UC–29

Description

The user wants to find data and needs to find the best tool to search for relevant data. Examples of user motivations:

- The user has read a paper or seen a talk and wants to get the original data referred to in the paper or talk in order to further study it or compare it to other data the researcher is already familiar with.
- A researcher has a particular model or hypothesis already in mind. (For example, an Earth-atmospheres researcher may have developed a particular model of atmospheric circulation that works for the Earth's atmosphere, and wants to apply the model to the Martian atmosphere.) The user needs to find data that will serve to test that model or hypothesis. Accordingly, s/he may need to search among all atmospheric data, e.g., to find out whether appropriate data exist, whether they are adequate, and for which targets.
- A researcher is studying a phenomenon, region, or a feature of a target and wants to find all data relevant to that region or feature. This will often involve multiple instrument types, typically images plus some other data.
- A researcher needs to do research in a particular science area and wants to find more information about the science area, contacts within the science area, discipline-specific tools, etc. The user should be able to find a link to the appropriate science node.
- An educator or student wants to find appropriate images to aid in the presentation of coursework (lectures or papers). The user may have a particular target or phenomenon in mind, or may be interested in representative images from a particular mission.
- A user wants to find data archived by an international agency. [Note: T. King suggests this be a separate use case instead.]

The user should be given suggestions on where to look for relevant data. Often the right destination will be a domain-specific search tool provided by the nodes, or an index page provided by the nodes. In cases where there is no other path to data, the user should be able to extend this use case with *UC–1 Finding Data Sets*.

Notes

Some of these queries may result in a failure to find adequate data. Finding out reasonably quickly that the data needed to meet a scientific goal is not archived in the PDS is as important as supporting quick access to data that is archived in the PDS. [source: conversation with Reta Beebe]

Example: A terrestrial atmospheric researcher has a model of atmospheric circulation and wants to apply it to another planetary target. However, the data archived in the PDS for that target may not have sufficient coverage or fine enough granularity to make it possible to apply the model.

UC–2 Finding Data Sets

Roles: Researchers and Proposers, primarily; any other roles

Originally: UC–1

Description

If a domain-specific search tool is not the best choice for the user, then s/he must be able to find data sets by various parameters.

Search by Mission/Instrument. (Most common except for Small Bodies researchers) The user wants to find data sets/volumes for a particular instrument and mission. The user will specify the mission and instrument, then narrow down the search by target, if it is a multi-target mission. Search results are likely data sets and volumes, and contain links to the science discipline node to further narrow the search and access the data.

Search by Target. (Common for Small Bodies users and those doing cross-mission comparison studies) The user wants to find available data sets and volumes for a target. S/he will specify the target and, optionally, the type of instrument when searching. Search results will lead the user to the discipline node.

Once one or more data sets are found, the user should be able to navigate to a view of the data set (most likely provided by a science node) which allows browsing/searching and downloading.

Notes

The PDS Home Page currently provides several parameter based search services for users to access data sets and associated data products, documents and software:

- Data set quick search using standard parameters
- Advanced search using additional parameters for experienced users
- Power search using comprehensive parameters for those familiar with PDS data model

The PDS Home Page provides help via a link within the main search page.

In addition, several search tools currently exist within the PDS Nodes.

4.2 Using PDS Data

UC–3 Finding Supplemental Information and Tools

Roles: Any roles

Originally: UC–14

Description

The user needs to find tools or supplemental information to help in working with data. The system should make it easy to find appropriate tools for the user's task. There are various reasons a user might want to find available tools, including:

- **Working with Data.** The user needs calibration software or algorithms, or other software tools to assist in working with special data formats.
- **Data Product Visualization.** The user wants to see the graphical pictures of Mars. A scientist wants to visually scan through a table containing a number of objects of interest. A user wants to preview image data.
- **Building new tools.** The user wants access to software libraries to use in creating a new data analysis or visualization tool.

Notes

The PDS Home Page provides online download capability in the *Tools* section for users to get software tools that aid data archiving and analysis. However, it is not always easy to find appropriate tools and documentation that are relevant to a users needs.

The user should be given suggestions on where to look for relevant supplemental information and software. Often the right destination will be mission or instrument specific software or algorithms provided through the DNs, domain-specific tools provided by the nodes, or an index page provided by the nodes. In cases where there is no other path to data, the user should be able to extend this use case with UC–1 Finding Data Sets.

UC–4 Finding Contact Information

Roles: Any roles

Originally: UC–10

Description

A user needs to find someone to contact to solicit help or get a question answered. It should be easy to determine who is the best contact based on the user's need and scientific interest. There are various reasons one might need to contact someone within the PDS community, including:

- **Connect with Other PDS Users.** The user needs to find contact information for someone affiliated with the PDS to answer questions or supply help.
- **Cite a PDS Data Set or Volume in a Paper.** The user has employed some PDS data products in a scientific study and wants to include a bibliographic reference to the data. S/he needs to learn the correct format for referencing the data and wants to talk to someone to make sure the citation is correct.
- **Overview of the PDS Organization.** The user wants to view the various components within the PDS Project Organization and those who manage those components.
- **Contacting a Node Manager.** The user needs to contact the Node Manager for one of the PDS disciplines. The user will visit the PDS web site and expect to find easily the contact information for the desired node.

- **Look up contact info by name.** The user already knows who s/he wants to contact, but doesn't have contact information. S/he will want to specify some portion of the user's name and institution, and possibly the PDS node, and find the right contact info.

Notes

The PDS Home Page currently provides a lookup tool to find staff contact info. Currently, the only search path supported is to look up contact info by name.

UC–5 Following Citations in PDS Data

Roles: Researchers

Originally: UC–12

Description

A researcher needs to find papers referred to in the PDS data sets s/he is using.

Notes

The PDS Home Page currently provides an on-line tool that allows users to look up bibliographic references from a data set. However, the location of the tool is far removed from the location of the data set. We may also want to link to the ADS system.

UC–6 Learning About Data Analysis Support

Roles: Researcher, Proposer

Originally: UC–28

Description

The user is preparing a proposal for an upcoming NASA Research Opportunities in Space and Earth Sciences (ROSES) or similar research announcement. The user needs to use specific data in his/her proposal.

Notes

The PDS Home Page site provides links to Cassini DAP pages provided by Atmospheres and RINGS Nodes, as well as Discovery DAP page provided by Small Bodies Node. A single location (URL) is needed to point researchers to the appropriate data sources.

4.3 Archiving with the PDS

UC–7 Learning How to Prepare Data

Roles: Data Preparer, Proposer

Originally: UC–31

Description

The user needs to understand how to prepare data for archiving.

UC–8 Learning How to Submit Data

Roles: Data Providers

Originally: UC–4

Description

Planning for Data Archiving. A Data Provider needs to understand how to create PDS-compliant data volumes. The user will come to the PDS Home Page expecting to find information quickly about how to go about designing and creating data sets and data volumes. The user will need information about:

- The general structure and requirements of PDS volumes
- PDS label format
- Whom to contact within the appropriate discipline node
- What tools are available to help with preparing and validating data volumes
- Where to go for additional information

Notes

The PDS Home Page currently provides a number of informational pages for users to learn about:

- How to submit data
- How to prepare PDS compliant data

UC–9 Creating a Data Archiving Plan

Roles: Proposers

Originally: UC–5

Description

Creating a Data Management and Archiving Plan for an Instrument. The user wants to complete a proposal for an instrument on a mission and needs to know how to create a plan for archiving the instrument data in the PDS. The user will come to the PDS Home Page to get information about:

- The responsibilities of the instrument team in data archiving
- The approval process for the Data Management and Archiving Plan
- The archiving process

- How to design good archive formats
- How to estimate the cost of data preparation and archiving

Creating a Data Management and Archiving Plan for a Data Analysis Proposal. The user wants to create a proposal for analyzing archived PDS data to create new scientific results. The analysis may cover a single data set or multiple data sets. The user will visit the PDS Home Page in order to find information about:

- PDS data that support existing Data Analysis Program solicitations (DAPs)
- Archiving requirements for Data Analysis Proposals
- The archiving process
- How to design good archive formats
- How to estimate the cost of data preparation and archiving

Notes

The PDS Home Page currently has information for proposers available at *Home→Information for Proposers*. The information is slanted toward instrument teams right now. What's missing is a good one-page overview of what the proposer should do. The PDS Home Page also has links on the main page to summaries of the data coverage for the DAPs.

UC–10 Learning How to Review Data

Roles: Data Reviewers

Originally: UC–6

Description

The user has been selected as a peer reviewer of a data set or volume. S/he must understand the requirements that archival products must meet in order to do a good job of reviewing the data. The user will visit the PDS Home Page in order to find information about:

- The peer review process and the responsibilities of peer reviewers
- What makes a data set or volume acceptable to the PDS
- Tools and documentation to help with the peer review process

Notes

The PDS Home Page has a page describing the peer review process. It is a general page that covers three roles, Data Preparer, Data Curator, and Data Reviewer. It might be more effective if it were split and rewritten to have separate pages for each role.

UC–11 Finding Keywords and Values

Roles: Data Suppliers, Researchers, Node Staff

Originally: UC–13

Description

The user is designing a label format for a data set and needs to determine what keywords and values to use for some instrument metadata.

Notes

The PDS Home Page currently provides an on-line tool that allows users to look up PDS keywords and objects, but this is just by name, not by purpose or category. The recommended strategy is to contact Node personnel instead. However, some instrument team members have suggested that a better way to look up keywords and values would be useful as well.

UC–12 Finding PDS Archive Standards

Roles: Any roles

Originally: UC–26

Description

Archiving data in PDS format. A science team member wants his/her data to be archived in PDS format before sending them to the curating PDS Node. S/He wants easy access to PDS archive and data standards details and link to the PDS Standard Reference and Data Dictionary.

Notes

The PDS Home Page currently provides access to the PDS Standard Reference and Data Dictionary via the Document page.

UC–13 Finding Related Standards

Roles: International Archivist, or any roles

Originally: UC–27

Description

Archiving data in PDS-compliant format. An international user wants his/her data to be archived in PDS-compliant formats.

Notes

The PDS Home Page should provide a link to the IPDA web site, a direct link to data standards, and should provide links to international data systems. Search tools in those international data systems should be available in use case UC–29.

UC–14 Finding Archiving Tools

Roles: Data Preparer, Archivist

Originally: UC–30

Description

The user needs to find tools to help in creating data for the PDS. The system should make it easy to find appropriate tools for the user's task. There are various reasons a user might want to find available tools, including:

- **Validating Volumes.** The user is supplying volumes to the PDS or receiving volumes at a science node and needs to validate whether the volumes are PDS-compliant. S/he will browse among the tools to those that are helpful in validating volumes, then download them for use locally.
- **Preparing data.** The user has a table of data and wants to create a PDS Compliant label.

- **Developing required PDS files.** The user needs to develop catalog files and needs to find appropriate templates. User needs to generate index files and needs to find appropriate tools to assist.

Notes

For example, if a user is trying to create new data volumes for submission to the PDS, there should be one place that catalogs validation tools, relevant PDS standards, data dictionaries, etc. (Right now, the user has to try both Documentation and Tools, and there's little explanation within either section to guide the user through the available items. For example, if the APG is the place to start, the page should say so. Also, within the Tools section, there is neither categorization nor adequate explanation of what the tools are for.)

4.4 Interacting with the PDS

UC–15 Finding PDS Announcements

Roles: Any roles

Originally: UC–25

Description

There should be a central place at the PDS Home Page for users to browse a current list of PDS announcements including new releases of data, tools and PDS standards.

Notes

The PDS Home Page currently has an area that shows the most recent releases and a link to the list of all releases.

UC–16 Getting Answers to Common Questions

Roles: Any roles

Originally: UC–23

Description

There should be an easy way for users to search and find the answers of questions commonly asked by all roles.

Notes

The PDS Home Page currently has a menu item to support this use case, but there is not a good way to facilitate user contribution of new questions and answers.

UC–17 Keeping Informed of New Releases

Roles: Researchers, primarily; any other roles

Originally: UC–8

Description

Get Notified When Data is Released or Updated. The user wants to keep current with a particular data set. S/he asks to be notified when any new data is released or any existing data is updated.

Get Notified When Documentation is Revised. The user wants to keep current with PDS standards and documentation.

Get Notified When Tools are Released or Updated. The user wants to keep current with PDS tools.

Finding New Data Releases. The user is interested in determining the latest data sets to be available. S/he navigates to the PDS Home Page to see the list of recent releases.

Finding New Standards. The user wants to ensure s/he has the latest PDS standards and dictionary. The user navigates to the PDS Home Page to ensure that no new releases of these data have occurred.

Notes

The PDS Home Page provides a subscription service for user to receive an e-mail notification when either data set, software or documentation of Cassini, Odyssey or MER1/MER2 is updated or modified. In addition to providing a release summary of past releases, the PDS Home Page also highlights the most recent release of:

- Mission data
- Data Dictionary
- Standard References

UC–18 Providing Feedback & Requesting Help

Roles: Any roles

Originally: UC–9

Description

Provide Web-Site Feedback. The user notices a problem or error on the PDS Home Page and wants to report it to the webmaster.

Provide Data or Documentation Feedback. The user has a comment about a PDS data set or PDS documentation and wants to report it to PDS staff.

Ask a Question. The user needs more information about PDS data, standards, or documentation and wants to ask PDS staff.

Enlist Help Finding Information. The user has had difficulty finding data, documents, or tools and wants to enlist help from PDS staff.

Notes

The PDS Home Page currently provides a feedback web page for user to submit questions, comments and inquiries.

4.5 External Capabilities

UC–19 Finding Document-Ready Images

Roles: Members of the Public, Academics and Students

Originally: UC–15

Description

The user wants to find interesting images or news about space missions. It should be easy to find interesting images for a particular target. Various reasons one might want such data include:

- **Getting "Cool" Pictures.** (General public) The user wants to view or download images for their aesthetic quality. S/he may have a particular target in mind, or may be interested in the latest pictures available from a current mission.
- **Images to Support Coursework.** (Academics and Students) The user wants to find appropriate images to aid in the presentation of coursework (lectures or papers). The user may have a particular target or phenomenon in mind, or may be interested in representative images from a particular mission.

Notes

The PDS Home Page provides a link to the Planetary Photojournal which holds images selected for interest to the general public.

UC–20 Finding Related External Sites

Roles: all

Originally: UC–16

Description

The user wants to find sites external to the PDS that are relevant to their use of PDS data. Examples:

- The user wants to find the mission home page for an active mission.
- The user is working with data from a mission and wants to find data from a different instrument, but the data from that other instrument is not archived within the PDS. The user needs to find where it is archived.

Notes

The "links" page on the current PDS Home Page lists some external sites. However, it is neither comprehensive nor shown in the context of searching for data.