

PDS Analyst's Notebook

Adding Value to NASA Planetary Data Archives by Integrating Mission Data and Documents

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PDS data archives

- The Planetary Data System (PDS) is a NASA organization that archives science data from NASA's planetary missions.
- One or more data sets are defined for each mission instrument based on the data products produced.
- An archive volume is created for each data set.

What is an archive volume?

- Archive volumes contain not only the scientific data, but information necessary to understand the data, including documentation that details
 - science objectives
 - instrument configuration and calibration
 - data acquisition, processing, and format
 - errata and other special considerations

Archive volume components

Archived Data

- Standard EDR and RDR data products

Documentation

- Software Interface Specification
- Spacecraft and instrument reports








Calibration Data

- Calibration reports and data



PDS Community

Archive volume file structure

-  calib
-  catalog
-  data
-  document
-  index
-  aareadme.txt
-  errata.txt

Analyst's Notebook Objective

Provide access to the mission data archives by integrating sequence information, engineering and science data, and documentation into standard web-accessible pages.

The screenshot displays the 'Spirit (MERA) Analyst's Notebook' web interface. The top navigation bar includes 'Home', 'Mission Summaries', 'Sol Summaries', 'Map', 'Search', 'Resources', and 'Help'. The main content area is divided into a left sidebar and a main panel. The sidebar lists 'SOL SUMMARY REPORTS' with a search bar and a 'REPORT' dropdown set to 'Data products'. Below this is a list of product entries, each with a thumbnail and a text label such as '2 F 127875931 EDN 03 27 P1100 L0 M1'. The main panel shows a detailed view for the selected product: 'Front Hazard Camera Downsampled EDR' (2 F 127876167 EDN 03 27 P1101 L0 M1). It features a 'PRODUCT MENU' with options like 'Overview', 'Image', 'Site Map', 'PGS Label', 'Derived Products', 'Related Products', 'Product Documents', and 'Help'. A large image of the rover's front hazard camera view is displayed, with a note stating 'This browser image is not the actual data product. View Sol resolution image.' Below the image are 'Download Product Files' and a 'Meta Data Overview' table.

Meta Data Overview	
Sol (Planet Day Number)	
Local True Solar Time	
Rover Motion Counter	
Sequence ID	17
UTC Start Time	12 28 55
Space Craft Clock Start Count	(3.27, 18, 1304, 199)
Space Craft Clock Stop Count	p1101
Product Data File MDS Checksum	2004-01-20T13 08:04.948
	2004-01-20T13 08:05.152
	127876167.746
	127876167.950

How is the Notebook developed?

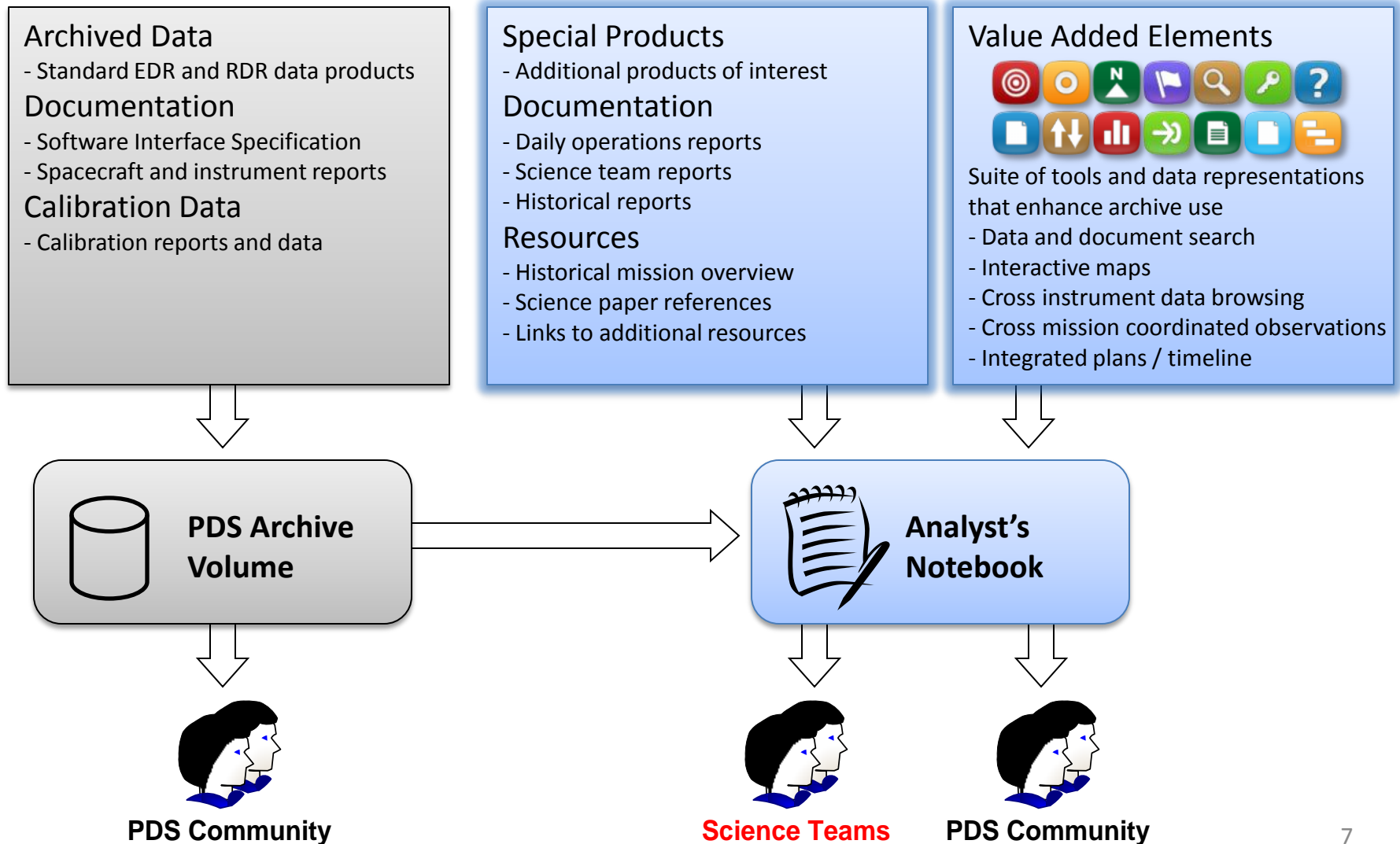
For active missions

- Jointly developed by PDS Geosciences Node and individual missions
- Not a mission critical tool
- Intended audience is the mission Science Team and PDS science community
 - **Team version** (password protected) for the Science Team
 - **PDS version** containing only released data and documentation
- Updates to the Notebook are made every day during the mission
- Developed on a best efforts basis

For historical missions

- Gather available data and documentation from archive sources
- Work with scientists familiar with data and with mission
 - Understand mission process
 - Determine how best to present data to scientific community
- Assemble mission holdings into Analyst's Notebook

Analyst's Notebook components



Current Analyst's Notebooks



MER, Phoenix, LCROSS, and Apollo Analyst's Notebooks

Apollo 16 Analyst's Notebook

Home | Map | Stations | Mission Summaries | Resources | Help

STATION VIEW [Mission overview](#)

Station 10 [Station overview](#)

Instruments | **Samples**

- Rock 60057
Cataclastic Anorthosite
- Rock 60058
Fragmental polymict breccia
- Rock 60059
Cataclastic Anorthosite
- Rock 60075
Fragmental polymict breccia
- Rock 60095
Glass
- Rock 60115
Glassy breccia
- Rock 60135
Cataclastic Anorthosite

Station 10 - Lunar Module/ALSEP

Station 10 includes the area around the Lunar Module (LM). It also includes the area where the astronauts deployed the Apollo Lunar Surface Experiments Package (ALSEP). The ALSEP included the Heat Flow, Passive Seismic, Active Seismic, and Lunar Surface magnetometer experiments. The Solar Wind Spectrometer was also deployed at Station 10. The astronauts also made a Portable Magnetometer measurement, made penetrometer measurements, used the Far-UV camera, collected a Deep Drill core to examine deep lunar stratigraphy, and collected drive core, rock and soil, samples. All activities were documented with photography.

Panorama

Apollo Surface Panoramas from LPI
[Click to view full-size image](#)

Map and sample locations

Apollo rock samples

Spirit (MERA) Analyst's Notebook

Home | Mission Summaries | Sol Summaries | Map | Search | Resources | Help

Rover Site Map

Use the Rover Site Map to see nadir view-oriented maps of rover sites. Use the options on the left to control the map. Click on the map to display data products at a given point. The [site map help page](#) describes how to use the map and what assumptions are made in producing the map.

Site and Position

Wait for map to update after changing site or position.

Current: Site 5 (Sols 39 to 43)
Site: Position 0 (Sols 39 to 40)

Map Appearance

Data Products: Show for all sols at this site/position

- Pancam
- Front Hazcam
- Navcam
- Rear Hazcam
- Microscopic Imager

Features: Show for all sols at this site

Map Width: Default
Image Size: Medium
Background: Show distance rings

Selected Products

Products found:
Full frame EDR
2 P 129835149 EFF 05 00 P2396 L2 C1

Spirit rover site map with product footprints

Opportunity (MERB) Analyst's Notebook

Home | Mission Summaries | Sol Summaries | Map | Search | Resources | Help

SOL SUMMARY REPORTS

Enter sol or select from list. Then select a report to access documents and data.

SOL: Sol 3 | Sol 6

REPORT: Data products

Panoramic Camera
Product Sequence P2353

SEQUENCE MENU

- Overview
- Image
- Product Documents
- Help

1 P 128532760 EFF 02 00 P2851 L4 C1...
3 products : L456

1 P 128532898 ESF 02 00 P2851 L4 C1...
3 products : L456

1 F 128533972 EDN 02 00 F0006 L0 M1...
2 products : L0 R0

1 F 128534090 EDN 02 03 F0006 L0 M1...
4 products : L0 R0

1 R 128534303 EDN 02 03 P1002 L0 M1...
2 products : L0 R0

1 P 128534453 ESF 02 03 P2600 L8 C1...
2 products : L8 R8

1 P 128534493 EFF 02 03 P2850 L8 C1...
4 products : L8 R8

1 P 128534568 EDN 02 03 P2610 L3 C1
1 product : L3

1 P 128534606 EDN 02 03 P2610 L6 C1...
2 products : L6 R6

1 P 128534645 EDN 02 03 P2610 L3 C1...
3 products : L36 R6

Opportunity data products and custom anaglyph

Phoenix Analyst's Notebook

Home | Sol Summaries | Mission Summaries | Search | Resources | Help

SOL 67 OBSERVATION SSI ATM - diurnal nighttime (with water sky mini)

Activities and Data Products

Select an activity or product to view

- SSI_ON_1 with inst [0000]
- SSI_OD_Filter [178A]
- SS 067 RAD 902144518_178A.3.L1
1 product : L1
- SS 067 RAD 902144805_178A.3.L1
2 products : L45

Observation

Name: SSI ATM - diurnal nighttime (with water sky mini)
Purpose: _____
Custodian: _____
Start time (UTC): 2008-08-02T11:31:31
Uplink priority: 0
Notes: Also has change-monitoring frost spot for Cupboard trench

Phoenix product timeline view

Phoenix Analyst's Notebook

Phoenix Mission Historical Overview

How to use this page

Specify columns to show

Download the table

Sol	Activity	Coordinated Obs	RA	SSI	Dig Summary	Dig Location
11	TEGA atmospheric measurement; RA acquire sample with RAC documentation; SSI multispectral spot "Lory" and "Mad Hatter"	Dust/Ice TOD 14:21:45	Acquire "Baby Bear" sample with RAC documentation and move to TEGA-4 delivery pose	13 filter samp site selection	Acquire TEGA "Baby Bear" sample	Wall (Baby Bear)
15	TEGA shake; RA sprinkle test	Vapor Dist. 23:22:23 23:28:21 03:48:51 07:25:46	Sprinkle test	---	Test Sprinkle	---
20	TEGA-4 mid temp ramp; Groom "DodoGoldilocks"	Albedo 15:00:38	Groom "DodoGoldilocks"	SSI change monitoring; Mission success	Extend and "Groom" DodoGoldilocks trench	Wall (DodoGoldilocks2)
22	TEGA-4 high temp ramp; RA trenching in "Wonderland"	Sky brightness 14:20:38, Albedo 14:48:05	Dig "Wonderland" trench	Mission success; Image dump site	Excavate Trench in Wonderland (Wonderland)	Wonderland (Wonderland)
32	Scrape "Snow White"	Dust, Ice dist. 14:38:48, (43):36:16	Scrape "Snow White"	Mission Success; Ice Structural Column, Preheat test	Dig and Groom Snow White 4	Wonderland (Snow White)

Records per page: 5 | Apply Filter | Hide Filter | Remove Filter

Phoenix mission historical overview

Spirit (MERA) Analyst's Notebook

Navigation Camera Data Set Documents for Spirit

These documents are designed to promote understanding of the mission, spacecraft, instruments, and data formats. For documentation detailing day-to-day mission operations refer to the Sol Summaries.

Archive Documentation

- camera_dpsis.lib: PDS label that describes the PDF version of the data product SIS.
- camera_dpsis.pdf: The Data Product Software Interface Specification document for the data set on this volume, in Adobe PDF format.
- coordinate_systems.lib: PDS label for COORDINATE_SYSTEMS PDF.
- coordinate_systems.pdf: An explanation of imaging coordinate systems.
- mer_time_issues.txt: Explanation of issues related to time tags in MER data products.

Calibration Files

- MER420-6-0786_initial.htm: Engineering camera calibration report in HTML format.
- MER420-6-0786_initial.pdf: Engineering camera calibration report in Adobe PDF format.

Catalog Files

- mission.cat: A brief description of the mission. It includes a chronology of events, definition of mission phases, and science objectives.
- nav2_ana_ds.cat: A description of the data set contained in the archive.
- nav2_disp_ds.cat: A description of the data set contained in the archive.
- nav2_lut_ds.cat: A description of the data set contained in the archive.
- nav2_lin_ds.cat: A description of the data set contained in the archive.
- nav2_mesh_ds.cat: A description of the data set contained in the archive.
- nav2_mosaic_ds.cat: A description of the data set contained in the archive.
- nav2_norm_ds.cat: A description of the data set contained in the archive.

MER Navigation Camera data set documentation

Spirit (MERA) Analyst's Notebook

Spirit Sol-by-Sol Document Search

Search through the science sol-by-sol documents by entering one or more keywords. Note that "*" and "?" wildcards are supported.

aladdin [Search]

Match: any search words | all search words

Find this type of file: All

Search results for: aladdin in all categories

10 results found

Refine your search by category:

- Word Documents (1)
- Excel files (5)
- PDF Files (2)

Did you mean: **Alatna?**

1. Sol 1 [Word Documents]

... planned sequences except the MinITES superresolution. However, an error in the MinITES of Aladdin on Magic Carpet pointed the instrument at the sky, so we missed the ...

2. Sol 9 [MER A Uplink Report]

... rock), a spot on Ichaabod Flats in Sleepy Hollow, a spot on Aladdin in Magic Carpet, and a 25x25 superresolution raster of Pitch Fork. The ...

3. Sol 08 SOWG Doc Report [PDF Files]

... rock), a spot on Ichaabod Flats in Sleepy Hollow, a spot on Aladdin in Magic Carpet, and a 25x25 superresolution raster of Pitch Fork. The ...

4. Sol 09 SOWG Doc Report [PDF Files]

Spirit science report text search

MER Analyst's Notebook User's Guide

Keyword Index

- Important Notes
- Using the Analyst's Notebook
- Navigating through the Data
 - Summary Reports
 - Unrecorded Traverse Maps
 - Rover Site Maps
 - Notebook Navigator/Product View Window
 - Data Product Search
 - Document Search
 - Data Set Documentation
 - User Forum
- Frequently Asked Questions (FAQ)
- MER Mission
- MER Data
- Appendices

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MER ANALYST'S NOTEBOOK USER'S GUIDE

Notebook Navigator/Product View Window

This is the main page for viewing data products. Components of this screen type are described below.

1. Database Navigator

2. Product View Window

3. Rover Site Map

4. Science Window

5. Data Product Search

6. Document Search

7. Data Set Documentation

8. User Forum

MER Notebook user's guide