

Astropedia Annex:

**A repository for planetary research
products**

**Lisa Gaddis, Trent Hare, Mark Bailen, Sue
LaVoie**

NASA PDS Imaging Node

NASA National Aeronautics and Space Administration + NASA en Español + Contact NASA PDS Data Search

PDS Imaging Node

U.S. Geological Survey Jet Propulsion Laboratory

ONLINE DATA VOLUMES | DOCUMENTATION | SOFTWARE/TOOLS | IMAGING NODE PERSONNEL

New Users
Can't find what you're looking for?
Photojournal

Planetary Image Atlas

Data Portal

Map-a-Planet

Data Release Calendar

Subscription Manager
Data where and when you want it.

SPACE IMAGES

Welcome to the PDS Imaging Node

The Imaging Node of the Planetary Data System is the curator of NASA's primary digital image collections from past, present and future planetary missions. The node provides to the NASA planetary science community the digital image archives, necessary ancillary data sets, software tools, and technical expertise necessary to fully utilize the vast collection of digital planetary imagery. For the Planetary Data System home page, see <http://pds.nasa.gov>.

Image of the Week

Colorful Cubes of Light

A portion of the first image cube measured by NASA's Moon Mineralogy Mapper (M3) on board the Indian Space Research Organization's Chandrayaan-1 spacecraft on Nov. 19, 2008, shows the crater Harpaxus north of Mare Imbrium.

Image Credit:
ISRO/NASA/JPL-Caltech/Brown Univ.

Full image and caption PIA12230

Latest News

Lunar Reconnaissance Orbiter (LRO) LAMP & LROC Release #3
September 15, 2010. LAMP & LROC data for the 3rd LRO release may now be accessed via the online data volumes as well as the Imaging Atlas. LRO WAC CDR data was released on August 21. Links to other useful sites for LRO can be found on the Imaging Node LRO Mission page including the LRO Mission home page.

Moon Mineralogy Mapper (M3) Partial Release #1
September 9, 2010. The M3 release of Optical Period 1, Level 1B data products, is now accessible via the online data volumes. Corresponding Level 0 data products are forthcoming as they are being updated by the team to ensure ease of use and compliance with PDS standards. More info can be found at the Chandrayaan-1 M3 infision page.

Mars Reconnaissance Orbiter (MRO) CTX & MARCI Release #13
September 9, 2010. The 13th MRO release has occurred for CTX & MARCI. The data covers Volumes 884-1010 for CTX and Volumes 296-315 for MARCI and can be accessed at the online data volumes and via the Atlas for both CTX and MARCI. The HRSE data was released earlier this month on September 1 and is available at the Atlas and online data volumes.

Mars Exploration Rover (MER) Release #25
August 23, 2010. The 25th MER data release occurred for Spirit and Opportunity covering Sols 2071-2160; the data may be accessed via the Atlas or the online data volumes.

Cassini Cartographic Map for Mimas
August 23, 2010. Version 3 of the Cassini cartographic map volume for Mimas has been released. The data may be accessed at the online data volumes for Cartographic Maps. The complete set of cartographic sheet maps may also be seen at PIA12793: The Mimas Atlas.

Cassini RADAR Release #22
August 4, 2010. Volumes 200, 281, 203 and

- IMG is a curator of NASA's primary **digital image collections** from past, present and future planetary missions
 - 8 nodes, 2 functions
- Serves digital image archives, ancillary data, software tools, and technical expertise necessary to fully utilize the vast collection of digital planetary imagery
- Collection is **~400 TB** of data

<http://pds-imaging.jpl.nasa.gov/>

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NASA PDS Imaging Node

● Primary activities

- Mission interface
 - 7 active missions, 2 new
- Data archiving (**20 missions**)
- User support, delivery services
 - Atlas, Photojournal, MAP, UPC/PILOT
- Restorations

● Support for mission **Data Nodes**

- MO THEMIS (ASU, Christensen)
- MRO HiRISE (UA, McEwen)
- LRO/LROC (ASU, Robinson)

PDS Online Data Volumes Index

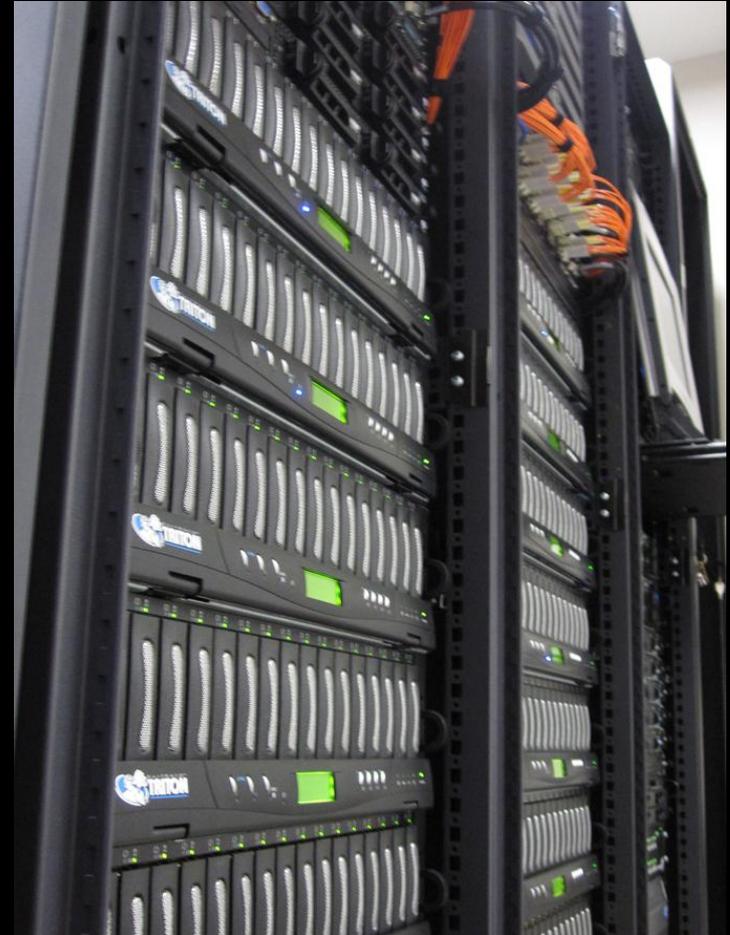
Use the following links to access the volume in which you are interested. Please be aware that most of the images in these volumes are in either PDS or VICAR format. If you would like to view images in other formats, product search capabilities are available via the Planetary Image Atlas.

By Mission	By Target
Cassini I88 RADAR VIMS Cartographic Maps	Mercury Mariner 10 EDRs ME8 SENGGER MDI8 EDRs and Calibrated Data Records
Chandrayaan-1 M1	Venus Magellan MIDRs Magellan F3A1APs Magellan GxDRs Mariner 10 EDRs ME8 SENGGER MDI8 EDRs and Calibrated Data Records
Clementine EDRs Lunar Basemap Mosaics Full Resolution UVVIS Digital Image Model High Resolution Mosaics	Earth/Moon Chandrayaan-1 M1 Clementine EDRs Clementine Lunar Basemap Clementine UVVIS Digital Image Model Clementine High Resolution Mosaics Galileo 8 BI EDRs Lunar Reconnaissance Orbiter LAMP, LROC Lunar Crater Observation and Sensing Satellite (LRO) 8 BI Mariner 10 EDRs ME8 SENGGER MDI8 EDRs and Calibrated Data Records
Galileo 8 BI EDRs NIM8 EDRs NIM8 CUBEs	Mars 2001 Mars Odyssey THEMIS EDRs & RDRs Mariner 9 EDRs Mars Exploration Rover EDRs, RDRs Mars Exploration Rover Camera RDR Mosaics Mars Exploration Rover Camera RDR Mosaics ESA Mars Express HR8C RDRs ESA Mars Express HR8C Map Projected Image Data ESA Mars Express HR8C Orthophoto/DTM Mars Global Surveyor Solenoid Sampler Mars Global Surveyor MOC D BOPs Mars Global Surveyor MOC IOPs Mars Pathfinder A3-MET EDRs and RDRs Mars Pathfinder IMP EDRs Mars Pathfinder Rover Cameras / APX8 Mars Reconnaissance Orbiter CTX Mars Reconnaissance Orbiter HIRISE Mars Reconnaissance Orbiter MARCI Phoenix OM, RAC, 8 BI EDRs Viking Lander EDRs Viking Lander TDRs Viking Orbiter EDRs Viking Orbiter MDIIs Viking Orbiter DTMs Viking Orbiter Color MDIIs Viking Orbiter Hi-Res MDIIs
Lunar Reconnaissance Orbiter (LRO) LAMP LROC LCRO 88	Jupiter Galileo 8 BI EDRs Galileo NIM8 EDRs Galileo NIM8 CUBEs Voyager I88 EDRs
Magellan Mosaicked Image Data Records Full Resolution Radar Mosaics Global Altimetry and Radiometry Data Records	Saturn Cassini I88 Cassini Radar Cassini VIMS Voyager I88 Calibrated Data Products Voyager I88 EDRs
Mariner 9 EDRs	Uranus Voyager I88 EDRs
Mariner 10 EDRs	Neptune Voyager I88 EDRs
Mars Exploration Rover (MER) EDRs, RDRs Camera RDR Mosaics Camera RDR Mosaics	Asteroids/Comets Shoemaker-Levy 9 - Events K, N & W NIM8 Shoemaker-Levy 9 - NIM8
ESA Mars Express (MEX) ESA HR8C RDRs ESA HR8C Map Projected Image Data ESA HR8C Orthophoto/DTM	Voyager I88 EDRs - Jupiter I88 EDRs - Saturn I88 EDRs - Uranus I88 EDRs - Neptune I88 Calibrated Data Products - Saturn
Mars Global Surveyor (MG8) Solenoid Sampler CD MOC Decompressed Standard Data Products MOC Standard Data Products	
2001 Mars Odyssey THEMIS EDRs, RDRs	
Mars Pathfinder A3-MET (raw and derived products) Imager for Mars Pathfinder EDRs Rover Cameras/APX8	
Mars Reconnaissance Orbiter (MRO) HIRISE EDRs & RDRs CTX EDRs MARCI EDRs	
ME8 SENGGER MDI8 EDRs and Calibrated Data Records	
Phoenix OM, RAC, 8 BI EDRs	
Shoemaker-Levy 9 Events K, N & W NIM8	
Viking Lander EDRs Processed Images	
Viking Orbiter EDRs Digital Image Maps Digital Topographic Maps Digital Color Mosaics Hi-Res Digital Image Maps	

IMG Data Holdings

For a given mission:

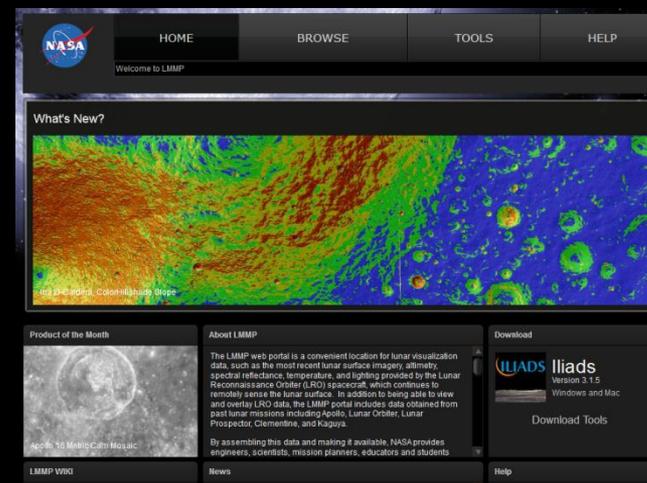
- Raw (experiment) data (EDRs)
- Reduced data (RDRs)
- Calibrated data (CDRs)
- Ancillary data & information
 - Calibration files, geometry, browse images
- Software & Documentation
 - Processing, calibration
 - Reports, descriptions, etc.
- **“Extras”**
 - Derived data, research products
 - *Largely mission-based*



Astropedia Annex

- **Planetary research products**

- Created post-mission, outside a mission, DAP, mission support, etc.
- Derived geospatial products that can be registered to a planetary body
 - Cartographic and thematic maps of moons and planets
 - Topographic and perspective views of landing sites
 - Tabular data with geologic unit information
 - Mission support collections for landing site selection, boulder & crater counts, assessments of lighting conditions, etc.



<http://www.lmmp.nasa.gov>

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Astropedia

- **Data Portal & Search Interface**

- Serves image and derived products from *USGS Astrogeology* cartography and research programs
- Derived from PDS data collections
 - Cartographic maps
 - Digital image mosaics (DIMs)
 - GIS projects, layers
 - Nomenclature databases for moons and planets
- Detailed **metadata** support robust search interface, cross-referencing of products and ancillary data
 - Target, geospatial coordinates, mission or instrument keywords, author, organization, descriptive information
- Data orders via online order form
- Downloads in common image formats
- *Mark Bailen's talk*

Astropedia is a planetary data and cartography catalogue housed by the USGS Astrogeology Science Center. Choose a search method below.



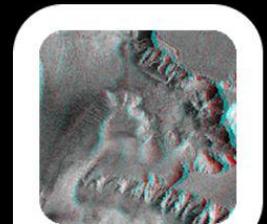
Planets / Bodies



Missions



Data Formats



Geologic Themes

<http://astrogeology.usgs.gov/astropedia>

Metadata

- **Federal Geographic Data Committee (FGDC)**
 - U.S. national government standard for metadata content and format
 - Promotes coordinated development, use, sharing and dissemination of geospatial data on a national basis
 - Documentation that thoroughly describes a data set
 - Rationale, authorship or origin, institution, attributes, spatial reference and geometric data, error estimates, etc.
 - “Data about data”



<http://www.fgdc.gov/>

Astropedia Annex Metadata

- Based on FGDC standard
- Augmented by PDS3/PDS4 standards for planetary data and PDS compatibility
- Users are guided by an online form
 - Authorship, contact information, institution, data lineage & source, date
 - Attributes (size, spatial resolution), descriptive information (caption)
 - Target body, geographic, spatial reference and geometric data
 - Map projection, coordinate system and geodetic base
 - Accuracy and error estimates, quality and completeness assessments
 - Linkages to other data and products, references and literature citations, review process and status

Well Known Text (wkt):	<input type="text"/>
Minimum Latitude:	<input type="text"/>
Maximum Latitude:	<input type="text"/>
Minimum Longitude:	<input type="text"/>
Maximum Longitude:	<input type="text"/>
Spatial Reference Method:	Raster <input type="text"/>
Object Type:	Pixel <input type="text"/>
Point and Vector Object Count:	<input type="text"/>
Raster Row Count:	<input type="text"/>
Raster Column Count:	<input type="text"/>
Quad System:	<input type="text"/>
Quad Name:	<input type="text"/>
Radius A (meters):	<input type="text"/>
Radius C (meters):	<input type="text"/>
Control Net:	<input type="text"/>
Bands:	<input type="text"/>
Latitude Resolution:	<input type="text"/>
Longitude Resolution:	<input type="text"/>
Abscissa Resolution:	<input type="text"/>
Ordinate Resolution:	<input type="text"/>
Altitude Resolution:	<input type="text"/>
Horizontal Coordinate System Units:	<input type="text"/>
Vertical Coordinate System Units:	<input type="text"/>
Map Projection Name:	<input type="text"/>
Latitude Type:	<input type="text"/>
Longitude Direction:	<input type="text"/>
Longitude Domain:	<input type="text"/>

- Albers Conical Equal Area
- Azimuthal Equidistant
- Equidistant Conic
- Equirectangular
- Lambert Azimuthal Equal Area
- Lambert Conformal
- Mercator
- Miller Cylindrical
- Mollweide
- Oblique Mercator
- Orthographic
- Polar Stereographic**
- Polyconic
- Robinson
- Simple Cylindrical
- Sinusoidal
- Space Oblique Mercator
- Stereographic
- Transverse Mercator

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Astropedia Annex: Requirements

- Geospatial products with PDS planetary data heritage or linkage
- Extensive FGDC metadata that meets PDS standards for compatibility
- Use an online form that specifies required & optional metadata entries
- Data will be converted to xml format for ingestion and retrieval through the Astropedia catalogs
- Products must be validated and reviewed prior to public release
 - Products that have already been published in professional science journals will be considered reviewed and validated
 - Unpublished products will require documentation of peer review by *at least three* researchers
 - IMG staff will assist with external reviews as needed
 - All data will be reviewed and validated by IMG and/or PDS staff prior to public release in the Astropedia Annex

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Astropedia Annex

- **Current status:**

- Submission form and detailed contents now under development at USGS & JPL
- Submission capability expected by **October, 2012**
- Stay tuned to: http://astrogeology.usgs.gov/astropedia_annex

- **Inquiries, proposal support, data submissions:**

- Contact me: Lisa Gaddis, lgaddis@usgs.gov

NODES / SUBNODES / DATA NODES

Functions / NODES Home Institutions

