

MESSENGER MDIS DATA in the NASA Planetary Data System

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PDS Imaging Node, USGS**

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46th Lunar and Planetary Science Conference 2015

PDS Imaging Node

U.S. Geological Survey

Jet Propulsion Laboratory

46th LPSC MESSENGER Data Workshop, 3.15.15

WHAT IS THE PLANETARY DATA SYSTEM (PDS)?



The PDS archives and distributes scientific data from NASA planetary missions, astronomical observations, and laboratory measurements. The PDS is sponsored by NASA's Science Mission Directorate. Its purpose is to ensure the long-term usability of NASA data and to stimulate advanced research.

PDS Imaging Node

U.S. Geological Survey

Jet Propulsion Laboratory

46th LPSC MESSENGER Data Workshop

OVERVIEW

How to find MESSENGER MDIS data in the PDS:

- PDS Home Page, Imaging & Geosciences Data Nodes
- PDS Imaging Node
 - PDS Data Portal, Online Data Volumes
 - PDS Imaging Node Online Data Volumes
 - PDS Planetary Image Atlas
 - PDS Map-A-Planet
 - PDS Planetary Image LOcator Tool (PILOT)
- PDS Geosciences Node
 - Mercury Orbital Data Explorer

PDS HOME PAGE

http://pds.nasa.gov

NASA PDS: The Planetary Data System

Search for: Go

in PDS data

- HOME
- ABOUT PDS
- DATA
- TOOLS & DOCUMENTS
- RELATED SITES
- CONTACT US
- CITING PDS DATA

New Releases

- March 15, 2013 Lunar Reconnaissance Orbiter Data Release 13
- March 8, 2013 MESSENGER Data Release 9
- March 1, 2013 Mars Reconnaissance Orbiter Data Release 24
- February 27, 2013 Mars Science Laboratory Data Release 1
- February 22, 2013 Mars Exploration Rovers Data Release 35
- Previous Releases
- Get notified of new releases

Welcome to the PDS

The PDS archives and distributes scientific data from NASA planetary missions, astronomical observations, and laboratory measurements. The PDS is sponsored by NASA's Science Mission Directorate. Its purpose is to ensure the long-term usability of NASA data and to stimulate advanced research. Learn more about PDS.

Researchers	Data Providers	Data Reviewers	Proposers
Search or browse for data sets	Archive preparation guide	The peer review process	Mission Proposers
Get notified (subscribe) when new data becomes available	Tools for data preparation	PDS Node contacts	Proposing Advanced Products
Find images from planetary missions	Example data and documents		ROSES 2008-2013 support in the PDS
Find tools for viewing and working with PDS data	Archiving standards		Archiving Check-list for PI-Led Proposals
Learn about PDS data format and structure	Information for proposers		PDS Policies affecting users
	Estimating archiving effort		
	PDS Node contacts		

Students & Educators

The PDS is mainly designed for scientists researching the planets. While you may find what you are looking for here, you are usually better off visiting one of the sites below, or another of the related sites.

- Planetary Photojournal**: A searchable collection of press release images from NASA planetary missions.
- Welcome to the Planets**: Reference information and images of each planet in our solar system.
- Map a Planet**: Create maps of many of the planets of our solar system, with customizable locations and scale.
- Cassini Press Release Rings Images**: A Month-By-Month Gallery of Cassini images of Saturn's Ring System.

International Planetary Science Data Archives

- Planetary Science Archive**: An archive containing planetary science data results from ESA missions.

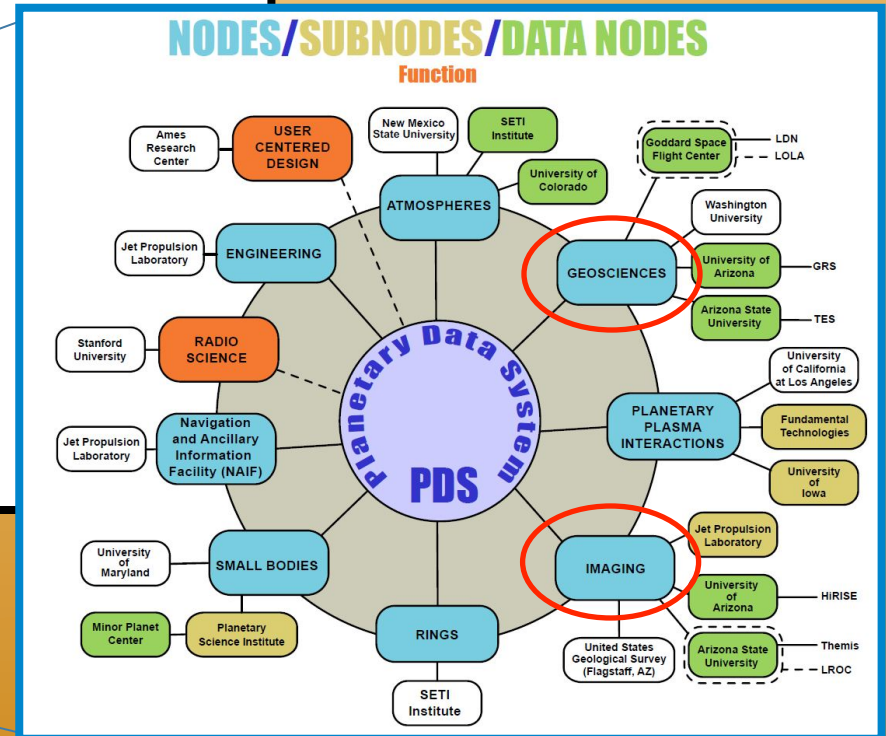
Quick Searches

- Mars Science Laboratory
- Mercury
- Venus
- Mars
- Jupiter
- Saturn
- Uranus, Neptune, Pluto
- Rings
- Asteroids
- Comets
- Planetary Dust
- Earth's Moon
- Solar Wind

PDS Nodes

- Atmospheres
- Geosciences
- Imaging
- Navigation & Ancillary Information (NAIF)
- Planetary Plasma Interactions (PPI)
- Planetary Rings
- Small Bodies

MDIS Data:
 PDS Home
 PDS Imaging Node
 PDS Geosciences Node



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PDS IMAGING NODE HOME PAGE

The screenshot shows the PDS Imaging Node home page. At the top, the title "PDS Imaging Node" is displayed in large white letters, with "U.S. Geological Survey" and "Jet Propulsion Laboratory" below it. A navigation bar contains links: "DATA VOLUMES INDEX | ALL DATA HOLDINGS | DOCUMENTATION | TOOLS & TUTORIALS | PERSONNEL | HELP". A blue arrow points to the left side of the page. On the left sidebar, there are several menu items: "New Users", "Photojournal", "Planetary Image Atlas" (circled in green), "Data Portal" (circled in red), "Map-a-Planet" (circled in blue), "Data Release Calendar", and "Subscription Manager". The main content area features a "Welcome to the PDS Imaging Node" message, a "Latest News" section with several articles (e.g., "MESSENGER Release #9", "Mars Reconnaissance Orbiter (MRO) HIRISE, CTX & MARCI Release #24", "Mars Science Laboratory (MSL) Release #1", "Mars Exploration Rover (MER) #35", "HRSC Mars Express Release"), and an "Image of the Week" section showing two images of the Moon. A red "2)" is next to the "Planetary Image Atlas" link, a red "1)" is next to the "Data Portal" link, and a blue "3)" is next to the "Map-a-Planet" link. At the bottom left, an orange "4) PILOT" is visible.

< Navigate from here also

4) PILOT

<http://img.pds.nasa.gov>

PDS Imaging Node





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DATA PORTAL

The PDS Imaging Node Data Portal is a scroll-down list that leads you to the Online Data Volumes, Image Atlas and Mission Documentation

 Mars Science Laboratory	HAZCAM NAVCAM MAHLI MARDI Mastcam	Mars	Atlas Product Search Online Data Volumes	Feb 27, 2013 HAZCAM & NAVCAM EDRs RDRs Expected Mar 20, 2013 Release 1 does not include data from the MAHLI, MARDI, or MastCam instruments.
 MESSENGER	MDIS	Mercury Venus	Atlas Product Search Online Data Volumes Documentation	MDIS Release #8 September 7, 2012 Note that the science collection during the third Mercury encounter was interrupted due to a spacecraft safe-mode demonstration. Please refer to the release files for more information of how the data sets were affected by that interruption.
 Phoenix	SSI, RAC, OM	Mars	Atlas Product Search Online Data Volumes Documentation	SSI, RAC, OM Final Release #3 May 4, 2009 Sols 91-152
 Viking Lander	LCS	Mars	Atlas Product Search Product Search Online Data Volumes Documentation	Mission Complete Viking 1 Last data received November 11, 1982 Viking 2 Last data received April 11, 1980
 Viking Orbiter	VISA VISB	Mars Deimos Phobos	Atlas Product Search Product Search Online Data Volumes Documentation	Mission Complete Viking 1 Last data received August 7, 1980 Viking 2 Last data received August 11, 1980

<http://img.pds.nasa.gov/portal/>

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ONLINE DATA VOLUMES

<http://img.pds.nasa.gov/volumes/mess.html>

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DATA VOLUMES | INDEX | ALL DATA HOLDINGS | DATA PORTAL | DATA RELEASES | TOOLS & TUTORIALS | HELP | HOME

MESSENGER Online Data Volumes

Online data volumes may be found at one or more sites. To access a volume, click on the icon(s) shown by the volume name

IN USGS (AZ)	IN JPL (CA)	EN JPL (CA)	GEO WASHU (MO)	ATM NMSU (NM)	Rings SETI (CA)	IN UofA (AZ)	IN ASU (AZ)	ZIP FILE
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MESSENGER Data Product Volumes (Sorted by Product Type)

Product Name	Description
MSGRMDS_8001 (accumulating)	Regional mosaics of targeted images covering 2011-03-29 to 2014-03-17 acquired by the MESSENGER MDIS WAC or NAC camera for regions of interest.
MSGRMDS_7101 (accumulating)	High solar incidence angle basemap illuminated from the west reduced data records covering 2011-03-29 to 2014-03-17 for the MDIS camera system on MESSENGER.
MSGRMDS_7001 (accumulating)	High solar incidence angle basemap illuminated from the east reduced data records covering 2011-03-29 to 2014-03-17 for the MDIS camera system on MESSENGER.
MSGRMDS_6001 (accumulating)	MESSENGER MDIS 3-Color Map Projected Multispectral Reduced Data Record (MDR) Archive. This volume contains maps of MDIS Wide Angle Camera images taken at Mercury over the interval 2012-03-26-2013-05-18. Users should note that the processing of the data is not yet final. Outstanding issues currently being worked include accuracy of the photometric correction to a standing geometry, and scattered light. These are documented in the data set catalog file in the catalog directory.
MSGRMDS_5001 (accumulating)	MESSENGER MDIS Map Projected Multispectral Reduced Data Record (MDR) Archive. This volume contains maps of MDIS Wide Angle Camera images taken at Mercury over the interval 2011-03-29-2012-02-10. Users should note that the processing of the data is not yet final. Outstanding issues currently being worked include accuracy of the photometric correction to a standing geometry, and scattered light. These are documented in the data set catalog file in the catalog directory.
MSGRMDS_4001 (accumulating)	MESSENGER MDIS Map Projected Basemap Reduced Data Record (BDR) Archive. This volume contains maps of MDIS Narrow Angle Camera, and Wide Angle Camera monochrome images taken at Mercury over the interval 2011-04-04-2012-03-25.
MSGRMDS_3001 (accumulating)	MESSENGER MDIS Derived Data Record (DDR) Geometry Data Archive. This volume contains MDIS image backplanes with latitude and longitude, incidence, emission, and phase angles for images taken at Mercury over the interval 2008-01-09 - 2014-03-17.
MSGRMDS_2001 (accumulating)	This volume contains MESSENGER MDIS calibrated data (CDR) taken during cruise, Earth, Venus, and Mercury flybys, and Mercury orbit over the interval 2004-06-19 - 2014-09-17. Images that meet validity tests are calibrated to units of radiance and/or I/F. Users should note that the processing of the data is not yet final. Outstanding issues currently being worked include radiometric accuracy of some WAC filters, and scattered light. These are documented in the data set catalog file in the catalog directory.
MSGRMDS_1001 (accumulating)	This volume contains MESSENGER MDIS raw experiment data records taken during cruise, Earth, Venus, and Mercury flybys and Mercury orbit over the interval 2004-06-19 - 2014-09-17.

****This is currently the only way to access DDRs, MDRs, BDRs, MD3s, HIWs, HIEs, and RTMs**

Index of /data/mess-h-mdis-5-rdr-mdr-v1.0

Name	Last modified	Size	Description
Parent Directory		-	
MSGRMDS_5001/	07-Feb-2013 13:12	-	

Index of /archive/mess-e_v_h-mdis-2-edr-rawdata-v1.0/MSGRMDS_1001

Name	Last modified	Size	Description
Parent Directory		-	
AAREADME.TXT	28-Dec-2011 14:09	10K	
BROWSE/	08-Jan-2010 12:32	-	
CALIB/	08-Jan-2010 12:32	-	
CATALOG/	30-Jul-2012 13:29	-	
DATA/	18-Jun-2012 14:51	-	
DOCUMENT/	19-Jun-2012 11:41	-	
ERRATA.TXT	20-Jun-2012 09:55	10K	
INDEX/	19-Jun-2012 11:42	-	
VOLDESC.CAT	20-Jun-2012 09:58	2.6K	

This is a good option if you are familiar with PDS volumes and know exactly what you're looking for.

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THE PDS VOLUMES AND WHAT THEY CONTAIN

<http://img.pds.nasa.gov/volumes/mess.html>

Volume Name	Product Type
MSGRMDS_1001	EDR – Experiment Data Record
MSGRMDS_2001	RDR – Reduced Data Record
MSGRMDS_3001	DDR – Derived Data Record, Image Backplanes
MSGRMDS_4001	BDR – Basemap Data Record
MSGRMDS_5001	MDR – Multispectral Data Record
MSGRMDS_6001	MD3 – 3-Color Multispectral Data Record
MSGRMDS_7001	HIE – High Solar Incidence Angle Basemap, East Illumination
MSGRMDS_7101	HIW – High Solar Incidence Angle Basemap, West Illumination
MSGRMDS_8001	RTM – Regional Targeted Mosaics

The full definitions of the various types of data products can be found on each respective volume within the DOCUMENT directory in the related Software Interface Specification (SIS) document.

ORGANIZATION OF THE DATA ON THE MDIS PDS VOLUMES

The **EDRs** and **CDRs** are organized into subdirectories (within the DATA or CDR directory) containing the EDRs/CDRs for one day of the mission. The directory name is of the form YYYY_DOY where YYYY is the year, and DOY is the day of year. An inclusion of a EDR/CDR in a folder is determined by the UTC time of the start of the exposure.

The **BDRs** and **MDRs** are organized into subdirectories based on the Mercury Chart containing the BDR/MDR. Latitude and longitude limits of Mercury Charts and the corresponding subdirectory names are given in the table below.

Quadrangle	Subdirectory name	Latitude (degrees)	Longitude (deg. east)
H-1 Borealis	H01	65 to 90	0 to 360
H-2 Victoria	H02	22.5 to 65	270 to 360
H-3 Shakespeare	H03	22.5 to 65	180 to 270
H-4 Liguria	H04	22.5 to 65	90 to 180
H-5 Apollonia	H05	22.5 to 65	0 to 90
H-6 Kuiper	H06	-22.5 to 22.5	288 to 360
H-7 Beethoven	H07	-22.5 to 22.5	216 to 288
H-8 Tolstoj	H08	-22.5 to 22.5	144 to 216
H-9 Solitudo Criophori	H09	-22.5 to 22.5	72 to 144
H-10 Pieria	H10	-22.5 to 22.5	0 to 72
H-11 Discovery	H11	-65 to -22.5	270 to 360
H-12 Michelangelo	H12	-65 to -22.5	180 to 270
H-13 Solitudo Persephones	H13	-65 to -22.5	90 to 180
H-14 Cyllene	H14	-65 to -22.5	0 to 90
H-15 Bach	H15	-90 to -65	0 to 360

PDS PLANETARY IMAGE ATLAS

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

The screenshot shows the Planetary Image Atlas website interface. At the top, the title "Planetary Image Atlas" is displayed in a large, white, serif font against a blue background with a grid pattern. Below the title is a navigation bar with links for "NEW SEARCH", "DATA PORTAL", "ABOUT", "HELP", "FEEDBACK", and "HOME".

The main content area is divided into several sections:

- Current Selection:** "Viewing all documents!"
- Search:** A search bar with the text "(press ESC to close suggestions)".
- Mission List:** A list of missions with their corresponding PDS IDs. The entry "mars science laboratory (4058300)" is circled in red.
- Results Per Page:** A dropdown menu set to "24".
- Navigation:** "< 1 2 3 ... 890115" indicating the current page is 1 of 890115.
- View Options:** "Grid View" and "Sort View" buttons.
- Image Thumbnails:** Two thumbnails are visible, each showing a globe of Earth with the text "Browse Not Available" overlaid. The first thumbnail has the ID "ABDR_04_D257_V02" and the second has "ABDR_SUMMARY_04_D257_V02".

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PDS PLANETARY IMAGE ATLAS

Product Search – Finding MDIS

The screenshot displays the Planetary Image Atlas interface. At the top, the title "Planetary Image Atlas" is prominently displayed. Below the title is a navigation bar with links for "NEW SEARCH", "DATA PORTAL", "ABOUT", "HELP", "FEEDBACK", and "HOME".

On the left side, there is a "Current Selection" section with a red circle around the text "[x] ATLAS_MISSION_NAME=messenger". Below this is a "Search" input field with a red circle around the text "mdis (397766)".

The main content area shows a grid of image thumbnails. The first row contains three thumbnails, each with a label "Cw1018219448_RA_4" and a "Click on image to display browse." button. The second row contains three more thumbnails. The interface also includes a "Results Per Page" dropdown set to "25" and a pagination indicator showing "displaying 1 to 24 of 397766".

PDS PLANETARY IMAGE ATLAS

Searching on Geometry Parameters

The screenshot displays the Planetary Image Atlas search interface. The main title is "Planetary Image Atlas" in a large, white, serif font against a blue background with a grid pattern. Below the title is a navigation bar with links: NEW SEARCH, DATA PORTAL, ABOUT, HELP, FEEDBACK, and HOME. The search results section shows "Results Per Page: 24" and "displaying 1 to 24 of 193089". The search filters are on the left, with "Orbital Mission Constraints" selected. The filters include: Mission, Instrument, Target, Product Type, Lighting Geometry, Filters, Lat/Lon Bounding Box, Time Constraints, and Orbital Mission Constraints. The Orbital Mission Constraints section is expanded, showing sliders for Solar Azimuth (0 to 360), Solar Distance (0 to 820000000 km), Solar Longitude (-45 to 360), and Spacecraft Altitude (0 to 1000000 km). The search results are displayed in a grid view, showing nine image thumbnails. The first row contains three images with IDs EW1021675631B, EW1021675630B, and EW1021675590B. The second row contains three images with IDs EW1021675589B, EN1021674563M, and EN1021674559M. The third row contains three images with IDs EN1021674563M, EN1021674559M, and EN1021674559M. The "Current Selection" section is circled in red, showing a list of selected filters: remove all, (x) ATLAS_MISSION_NAME:messenger, (x) ATLAS_INSTRUMENT_NAME:mdis, (x) TARGET_NAME:mercury, and (x) PRODUCT_TYPE:edr. The "Orbital Mission Constraints" section is also circled in red, showing the sliders for Solar Azimuth, Solar Distance, Solar Longitude, and Spacecraft Altitude.

PDS PLANETARY IMAGE ATLAS

Searching on Lighting Geometry

The screenshot displays the Planetary Image Atlas search interface. The main title "Planetary Image Atlas" is at the top. Below it is a navigation bar with links: NEW SEARCH, DATA PORTAL, ABOUT, HELP, FEEDBACK, HOME. The "Current Selection" section on the left lists filters: remove all, (x) ATLAS_MISSION_NAME:messenger, (x) ATLAS_INSTRUMENT_NAME:mdis, (x) TARGET_NAME:mercury, and (x) PRODUCT_TYPE:edr. The "Lighting Geometry" section is highlighted with a red circle and contains three sliders: Emission Angle Range (0 to 180 deg), Incidence Angle Range (0 to 180 deg), and Phase Angle Range (0 to 180 deg). Below this are other filter categories like Filters, Lat/Lon Bounding Box, Time Constraints, Orbital Mission Constraints, Landed Mission Constraints, and PDS Archive Constraints. The main search results area shows a grid of image thumbnails with their IDs: EW1021675631B, EW1021675630B, EW1021675590B, EW1021675589B, EN1021674563M, and EN1021674559M. The interface also shows "Results Per Page: 24" and "displaying 1 to 24 of 193089".

PDS PLANETARY IMAGE ATLAS

Searching on Time Parameters

The screenshot displays the Planetary Image Atlas search interface. The main title is "Planetary Image Atlas" in a large, white, serif font. Below the title is a navigation bar with links for "NEW SEARCH", "DATA PORTAL", "ABOUT", "HELP", "FEEDBACK", and "HOME".

On the left side, there is a "Current Selection" section with a red circle around it, containing the following text:

- Remove all
- (x) ATLAS_MISSION_NAME:messenger
- (x) ATLAS_INSTRUMENT_NAME:mdia
- (x) TARGET_NAME:mercury
- (x) PRODUCT_TYPE:edr

Below this is a "Search:" section with a text input field and a "Search" button. Underneath are several filter categories, each with a dropdown arrow:

- Mission
- Instrument
- Target
- Product Type
- Lighting Geometry
- Filters
- Lat/Lon Bounding Box
- Time Constraints** (highlighted with a red circle)
- Orbital Mission Constraints
- Landed Mission Constraints
- PDS Archive Constraints
- Maps

The "Time Constraints" section is expanded and contains the following fields:

- Spacecraft Clock Start Count Range (0 to 180 deg)**: A range from 0.0 to 1039099181.103.
- Start Time Range**: Fields for "yyyy-mm-dd" to "yyyy-mm-dd".
- Stop Time Range**: Fields for "yyyy-mm-dd" to "yyyy-mm-dd".
- Product Creation Time Range**: Fields for "yyyy-mm-dd" to "yyyy-mm-dd".

On the right side, there is a "Results Per Page:" dropdown set to "24" and a pagination control showing "displaying 1 to 24 of 193089". Below this is a "Grid View" and "Sort View" toggle. The main content area displays a grid of image thumbnails. Each thumbnail has a unique ID and icons for download, print, and share. The IDs visible are:

- EW1021675631B
- EW1021675630B
- EW1021675590B
- EW1021675589B
- EN1021674563M
- EN1021674559M

PDS Planetary Image Atlas

Searching By File Name or Product ID

Planetary Image Atlas

NEW SEARCH | DATA PORTAL | ABOUT | HELP | FEEDBACK | HOME

Current Selection

- remove all
- (x) ATLAS_MISSION_NAME:messenger
- (x) ATLAS_INSTRUMENT_NAME:mdis
- (x) TARGET_NAME:mercury
- (x) PRODUCT_TYPE:edr

Search

View suggestions

- Mission
- Instrument
- Target
- Product Type
- Lighting Geometry
- Filters
- Lat/Lon Bounding Box
- Time Constraints
- Orbital Mission Constraints
- Landed Mission Constraints
- PDS Archive Constraints**

File Name

Product ID

Reports | Sort View Updates

Bulk File Download

Results Per Page: 24

< 1 2 3 ... 8045 8046 > displaying 1 to 24 of 193089

Grid View | Sort View

EW1021675631B

EW1021675630B

EW1021675590B

EW1021675589B

EN1021674563M

EN1021674559M

PDS PLANETARY IMAGE ATLAS

Create a Report or View Thumbnail

Planetary Image Atlas

NEW SEARCH DATA PORTAL ABOUT HELP FEEDBACK HOME

Results Per Page: 24 < 1 2 3 ... 8045 8046 > displaying 1 to 24

Grid View Sort View

Current Selection

- remove all
- (x) ATLAS_MISSION_NAME:messenger
- (x) ATLAS_INSTRUMENT_NAME:mdis
- (x) TARGET_NAME:mercury
- (x) PRODUCT_TYPE:edr

Select Report Fields:

- CENTER_FILTER_WAVELENGTH
- CENTER_LATITUDE
- CENTER_LONGITUDE
- DATA_QUALITY_ID
- DATA_SET_ID
- DETECTOR_TEMPERATURE
- EMISSION_ANGLE
- EXPOSURE_DURATION
- EXPOSURE_TYPE
- FILE_NAME
- FILE_PATH
- FILTER_NUMBER
- FILTER_TEMPERATURE
- LOCAL_PLANE_TEMPERATURE
- HORIZONTAL_PIXEL_SCALE
- INCIDENCE_ANGLE
- INSTRUMENT_ID
- MESS_COMP_EST
- MESS_COMP_ID
- MESS_COMP_NAME
- MESS_COMP_EST

Download CSV Update Fields

EN1021674563M

Click on image to add filter(s)

EN1021675631B EW1021675630B EW1021675590B

EW1021675589B EN1021674563M EN1021674559M

EN1021674551M EN1021674555M EN1021674547M

PDS PLANETARY IMAGE ATLAS

Getting Multiple Results: Download via Zip or Wget

The screenshot displays the Planetary Image Atlas web interface. On the left, a sidebar contains search filters such as Mission, Instrument, Target, Product Type, Lighting Geometry, Filters, Lat/Lon Bounding Box, Time Constraints, Orbital Mission Constraints, Landed Mission Constraints, PDS Archive Constraints, and Maps. The 'Bulk File Download' option is highlighted with a red circle. Below the filters, there are buttons for 'Bulk Download Files' and 'Create WGET File'. The main area shows a grid of image thumbnails. One thumbnail, labeled 'EN1021674563M', is circled in red. A red arrow points from this thumbnail to a terminal window on the right. The terminal window contains the following commands:

```
wget -O EN1021674563M.IMG 'http://pds-imaging.jpl.nasa.gov/pds/prod?q=OFSN+3D+/data/messenger//MSGRMDS_1001/DATA/2013_259//EN1021674563M.IMG+AND+RT+3D+RAW'  
wget -O EN1021674551M.IMG 'http://pds-imaging.jpl.nasa.gov/pds/prod?q=OFSN+3D+/data/messenger//MSGRMDS_1001/DATA/2013_259//EN1021674551M.IMG+AND+RT+3D+RAW'  
wget -O EN1021674555M.IMG 'http://pds-imaging.jpl.nasa.gov/pds/prod?q=OFSN+3D+/data/messenger//MSGRMDS_1001/DATA/2013_259//EN1021674555M.IMG+AND+RT+3D+RAW'  
wget -O EN1021674547M.IMG 'http://pds-imaging.jpl.nasa.gov/pds/prod?q=OFSN+3D+/data/messenger//MSGRMDS_1001/DATA/2013_259//EN1021674547M.IMG+AND+RT+3D+RAW'  
wget -O EN1021674559M.IMG 'http://pds-imaging.jpl.nasa.gov/pds/prod?q=OFSN+3D+/data/messenger//MSGRMDS_1001/DATA/2013_259//EN1021674559M.IMG+AND+RT+3D+RAW'
```

PDS MAP-A-PLANET

Map-A-Planet provides access to the *MESSENGER/Mariner 10 Global Mosaic*

<http://www.mapaplanet.org>

USGS
science for a changing world
Astrogeology Research Program

HOME HELP SEARCH ABOUT US

Map-a-Planet

PDS Imaging Node

Explore global imagery of the planets and satellites from a variety of missions in an easy to use web interface. Customize and download your own image maps of the Moon, Mars, Venus, and other planets and moons.

To get started:

1. Select a planet or moon from the buttons on the right.
2. Click on the image of the dataset you'd like to explore.
3. *Start exploring!*
4. Select resulting images for download.
5. ... and also 'Order' custom products .

WHAT IMAGERY WILL I FIND HERE?

- FAQS
- HELP
- MEET THE TEAM

WHAT'S NEW? AND FEATURED DATA SETS

LRO-LOLA Gridded Data Record Digital Elevation Model!
September 2012

» LOLA lunar elevation data are now

PLANETS & EARTH'S MOON

MERCURY VENUS MOON

MOONS OF JUPITER

CALLISTO EUROPA GANYMEDE

MOONS OF SATURN

IO

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PDS MAP-A-PLANET

Map-A-Planet allows Pan and Zoom, Ordering, and other functions

USGS PDS Imaging Node

HOME HELP SEARCH ABOUT US

Map-a-Planet Explorer: Mercury - Messenger MDIS/Mariner10 Mosaic

Navigation Toolbar

Image Information

Advanced Options

Make changes to image parameters below and click the *Submit Changes* button below.

Image size: 360 x 720
height x width

Resolution: 2 Full res.: 85.17 px/deg

Scale: 21.29301 km/px

Projection: Simple Cylindrical
Polar Stereographic available via 'order' above.

Grid: No Grid

Stretch: Auto
Preserve science integrity? See FAQ or Order page note regarding stretch options.

Longitude: -- Latitude: --

Move mouse cursor over the image to view coordinates

View and Save: [Image](#) | [GIS World file](#)

PDS MAP-A-PLANET

Order your area of interest

USGS PDS Imaging Node

HOME HELP SEARCH ABOUT US

Map-a-Planet Explorer: Mercury - Messenger MDIS/Mariner10 Mosaic

Navigation Toolbar

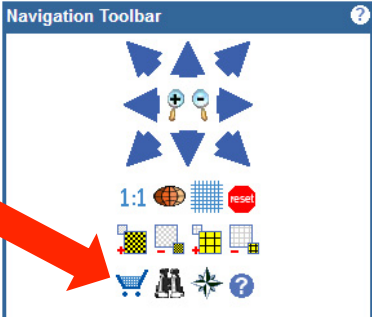


Image Information


Advanced Options

Make changes to image parameters below and click the *Submit Changes* button below.

Image size: 361 x 360
height x width

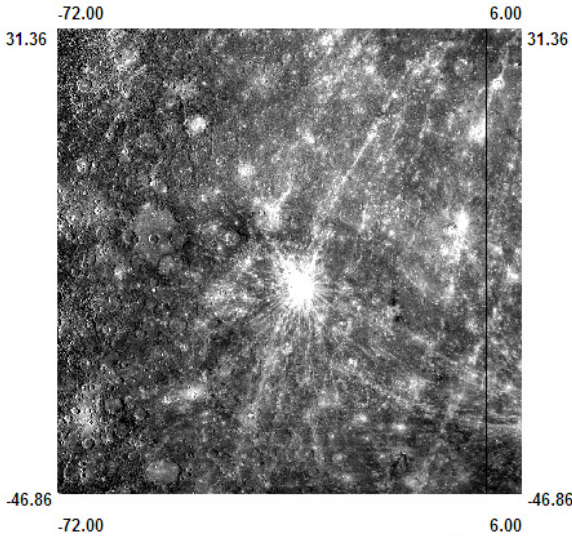
Resolution: 4.615384 Full res.: 85.17 px/deg


Scale: 9.22697 km/px

Projection: Simple Cylindrical
Polar Stereographic available via 'order'  above.


Grid: No Grid

Stretch: Auto
Preserve science integrity? See FAQ or Order page note regarding stretch options.



Longitude: -- Latitude: -- 

Move mouse cursor over the image to view coordinates

View and Save: [Image](#) | [GIS World file](#) 

PDS MAP-A-PLANET

Orders can be placed in multiple formats, and options

Map-a-Planet Explorer: Order Form

Welcome to the Map-a-Planet Explorer Order Form page. Please complete the information below and click the *Submit Order* button at the bottom of the form to complete your order.

Order Settings & Information

The table below show the settings that will be used to create your image map. To change these settings, modify the settings in the *Advanced Options* below, or [return to your image map in Explorer](#).

System: Mercury	Resolution: 4.61538461538461	North: 31.36
Data set: Messenger MDIS/Mariner10 Mosaic mess_m123m10	Scale: 9.22697	South: -46.86
Grid: none	Image Size: 361 x 360	East: 6.00
Stretch: auto	Projection: Simple Cylindrical	West: 288

Please provide the following information. You will be contacted via e-mail when your product is ready for download. Depending on the size and complexity of your order and current system load, it may take up to 24 hours for your product to be created.

Name:

Affiliation:

E-Mail Address:

Note: If you wish to preserve the scientific integrity of the data pixel values (PDS, ISIS, or RAW formats only), select **Stretch="None"** under "Advanced Options" when ordering.

Select the image format and whether or not you'd like a GIS World file generated, then hit *Submit Order* at the bottom of the page.

Image Format++	Output Pixel Type*	Apply Custom Function*	GIS World File?
<input checked="" type="radio"/> JPEG	<input checked="" type="radio"/> Dataset native	Enter function: NONE	<input type="radio"/> Yes
<input type="radio"/> GIF	<input type="radio"/> 8bit	See additional instruction .	<input checked="" type="radio"/> No
<input type="radio"/> TIFF	<input type="radio"/> 16bit-LSB	Then enter desired Bands	
<input type="radio"/> PDS	<input type="radio"/> 32bit-LSW	and Stretch="None" below.	
<input type="radio"/> ISIS		Resulting product is 32bit.	
<input type="radio"/> RAW			

++ Must select "8bit" for TIFF, JPEG, or GIF orders

* Applicable for PDS, ISIS, & RAW orders.

Advanced Options

Make changes to image parameters below and click the *Submit Changes* button below.

Image size: 361 x 360
height x width

Resolution: 4.615384 Full res.: 85.17 px/deg

Scale: 9.22697 km/px

Projection: Simple Cylindrical
Center Latitude of Projection =±90 when selecting Polar Stereographic for order.

Grid: No Grid

Stretch: Auto
Preserve science integrity? See FAQ or Order page note regarding stretch options.

Resample: Nearest Neighbor

North (top): 31.36

West (left): 288 west < east

East (right): 6.00


South (bottom): -46.86

Center Longitude of Projection: -33
 Use the center longitude of the image as the center longitude of projection.

SUBMIT ORDER **RESET FORM**

PDS MAP-A-PLANET

Confirm and Order your data product. Email notification will be sent to you.

HOME HELP SEARCH ABOUT US

MAP-A-PLANET ORDER CONFIRMATION

Your custom image map order is shown below, please review and confirm your information. You MUST click on "SEND ORDER" if you wish to complete your order.

REQUESTER TIME = "2013-03-14T12:51:42"
REQUESTER NAME = "Lisa Gaddis"
REQUESTER AFFILIATION = "USGS"
REQUESTER MAILBOX = "lgaddis@usgs.gov"

Data Set Requested "mess_m123m10"
Bands Selected "1,1,1"
Custom Equation "NONE"
Function Type Requested ""
Pixel type "DEFAULT"
Resolution (pixels/degree) "4.61538461538461"
Positive longitude "EAST"
Format "JPEG"
Projection "SIMPLE_CYLINDRICAL"
west longitude "288"
east longitude "6.00"
north latitude "31.36"
south latitude "-46.86"
Center longitude "-33"
Center latitude "0"
Grid Line Frequency "none"
Resample Method "nearest_neighbor"
Density Stretch Type "auto"
World Files Created "NO"

[Return to the Map-a-Planet Homepage](#)
Map-a-Planet Version 1.0
Web Page Curator: [Patty Garcia](#)
Development Team

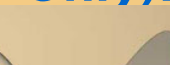
PLANETARY IMAGE LOCATOR TOOL

HTTP://PILOT.WR.USGS.GOV

Demo!

Choose Mercury (for EDRs Only):

PILOT



Planetary Image Locator Tool access to NASA's largest spacecraft imagery archive

Mercury 259,592 images	Saturn 336,855 images	Uranus 5,024 images
Venus 7,254 images	Atlas 1,100 images	Ariel 101 images
Earth 47,839 images	Calypso 830 images	Miranda 90 images
Moon 2,824,163 images	Daphnis 119 images	Oboron 14 images
Mars 1,592,191 images	Enceladus 16,222 images	Titania 102 images
Deimos 246 images	Epimetheus 1,544 images	Umbriel 100 images
Phobos 444 images	Helene 1,523 images	Neptune 5,590 images
Jupiter 85,491 images	Hyperion 4,767 images	Nereid 188 images
Adrastea 23 images	Iapetus 8,836 images	Triton 613 images
Amalthea 227 images	Janus 2,339 images	Untargeted Images
Callisto 1,933 images	Methone 624 images	
Europa 2,192 images	Mimas 5,653 images	
Ganymede 2,247 images	Pallene 709 images	
Himalia 353 images	Pan 1,161 images	
Io 3,853 images	Pandora 1,266 images	
Metis 27 images	Phoebe 2,271 images	
Thebe 46 images	Polydeuces 429 images	
	Prometheus 3,516 images	
	Rhea 14,074 images	
	Teleso 821 images	
	Tethys 8,578 images	
	Titan 88,349 images	
	Ymir 66 images	

News

- PILOT / UPC Data Release October 2014: Lunar Reconnaissance Orbiter**
Oct 17, 2014
The NASA/USGS PDS Imaging Node has added the following data to the Unified Planetary Coordinate (UPC) Database. MISSION / INSTRUMENT: Lunar Reconnaissance Orbiter / LROCNACRelease #19. Mapped Images: 52,716. Unmapped Images: 8. Please visit PILOT to access/download. ... [Read more](#)
- PILOT / UPC Data Release September 2014: Mars Reconnaissance Orbiter - CTX**
Sep 19, 2014
The NASA/USGS PDS Imaging Node has added the following data to the Unified Planetary Coordinate (UPC) Database. MISSION / INSTRUMENT: MARS RECONNAISSANCE ORBITER / CTXRelease #30. Mapped Images: 2,510. Unmapped Images: 1. Please visit PILOT to access/download. ... [Read more](#)
- PILOT / UPC Data Release September 2014: Mars Reconnaissance Orbiter - Marci**
Sep 19, 2014
The NASA/USGS PDS Imaging Node has added the following data to the Unified Planetary Coordinate (UPC) Database. MISSION / INSTRUMENT: MARS RECONNAISSANCE ORBITER / MarciRelease #30. Mapped Images: 1,970. Unmapped Images: 294. Please visit PILOT to access/download. ... [Read more](#)
- PILOT / UPC Data Release September 2014: MESSENGER**
Sep 12, 2014
The NASA/USGS PDS Imaging Node has added the following data to the Unified Planetary Coordinate (UPC) Database. MISSION / INSTRUMENT: MESSENGER Release #12MDIS-NAC. Mapped Images: 16,395. Unmapped Images: 222 MDIS-NAC. Mapped Images: 5,410. Unmapped Images: 364. Please visit PILOT to access/download. ... [Read more](#)
- PILOT / UPC Data Release June 2014: Mars Reconnaissance Orbiter - CTX**
Jun 27, 2014
The NASA/USGS PDS Imaging Node has added the following data to the Unified Planetary Coordinate (UPC) Database. MISSION / INSTRUMENT: MARS RECONNAISSANCE ORBITER / CTXRelease #29. Mapped Images: 1,859. Unmapped Images: 0. Please visit PILOT to access/download. ... [Read more](#)
- PILOT / UPC Data Release June 2014: Mars Reconnaissance Orbiter - Marci**
Jun 27, 2014
The NASA/USGS PDS Imaging Node has added the following data to the Unified Planetary Coordinate (UPC) Database. MISSION / INSTRUMENT: MARS RECONNAISSANCE ORBITER / MarciRelease #29. Mapped Images: 1,858. Unmapped Images: 395. Please visit PILOT to access/download. ... [Read more](#)
- PILOT / UPC Data Release March 2014: Mars Reconnaissance Orbiter - CTX**
Mar 7, 2014
The NASA/USGS PDS Imaging Node has added the following data to the Unified Planetary Coordinate (UPC) Database. MISSION / INSTRUMENT: MARS RECONNAISSANCE ORBITER / CTX. Mapped: 1,787 Unmapped: 2 Total: 1,789. The strat times: ... [Read more](#)
- PILOT / UPC Data Release: Odyssey - THEMIS_IR**
Jan 21, 2014
The NASA/USGS PDS Imaging Node has added the following data to the Unified Planetary Coordinate (UPC) Database. MISSION / INSTRUMENT: Mars Odyssey / THEMIS_IR. Mapped: 1,412 Unmapped: 0 Total: 1,412 [Read more](#)
- PILOT / UPC Data Release: Odyssey - THEMIS_VIS**
Jan 21, 2014
The NASA/USGS PDS Imaging Node has added the following data to the Unified Planetary Coordinate (UPC) Database. MISSION / INSTRUMENT: MARS Odyssey / THEMIS_VIS. Mapped: 1,067 Unmapped: 0 Total: 1,067 &nb. ... [Read more](#)
- PILOT / UPC Data Release: Mars Reconnaissance Orbiter - CTX**
Sep 5, 2013

downloads | contact | support | help

PILOT was developed by the USGS Astrogeology Science Center / NASA PDS Imaging Node

PDS Imaging Node

U.S. Geological Survey Jet Propulsion Laboratory

46th LPSC MESSENGER Data Workshop

PLANETARY IMAGE LOCATOR TOOL

Select MESSENGER Images (NAC, WAC or Both)

The screenshot shows the PILOT web interface for Mercury. The 'Missions' tab is active, displaying a list of image sets. The 'Messenger' section is highlighted with a red circle, showing the following data:

Mission	Mapped	Unmapped	Actions
Mariner 10 (1974)			
• VID A	<input type="checkbox"/> 2,007 mapped	<input type="checkbox"/> 1,248 unmapped	lat, lon
• VID B	<input type="checkbox"/> 2,035 mapped	<input type="checkbox"/> 1,270 unmapped	lat, lon
• Messenger (2008 - 2014)			
• MDIS-NAC	<input checked="" type="checkbox"/> 128,373 mapped	<input type="checkbox"/> 1,984 unmapped	lat, lon
• MDIS-WAC	<input type="checkbox"/> 116,157 mapped	<input type="checkbox"/> 6,516 unmapped	lat, lon

The right panel contains 'SEARCH TIPS' with the following instructions:

1. Enable the search button by selecting one or more images sets on the **Missions** tab.
2. *Mapped* images have lat/lon coordinates and photometric keywords
3. *Unmapped* images have incomplete data. The images had errors during processing because of improper labels or spacecraft information. Lat/Lon and photometric keywords are unavailable. NOTE: although the sets cannot be mapped, they still may contain quality imagery.
4. Use **Map** tab to limit your search by creating a bounding box (optional). After you complete a search, the map tab will also allow you to view footprints for mapped imagery.
5. Use **Advanced** tab to limit your search by setting ranges for dates and photometric keywords (optional).
6. When you are ready to search, click the search button . If you refine your search, you must re-click the search button.
7. The **Total** will show up above. **Results** will show up in this panel. If your result set is greater than 50,000 images, you will only receive a total.
8. Click on action buttons to investigate images. Use checkboxes to select images.
9. To download selected images, click the arrow in the **Select** box (upper right).

At the bottom of the interface, there are links for 'downloads | contact | support | help' and a note: 'PILOT was developed by the URO & Astrogeology Science Center / NASA PD & Imaging Node'.

PLANETARY IMAGE LOCATOR TOOL

Initiate the search:

USGS science for a changing world

PILOT

PDS NASA

Mercury

total 1984

Order: Date (ASC)

Select

Select one or more image sets...

Mariner 10 (1974)

- VID A 2,007 mapped 1,248 unmapped
- VID B 2,035 mapped 1,270 unmapped

Messenger (2008 - 2014)

- MDIS-NAAC 128,373 mapped 1,984 unmapped
- MDIS-WAC 116,157 mapped 6,518 unmapped

1 2008-01-09 2 2008-01-14 3 2008-01-14 4 2008-01-14 5 2008-01-14 6 2008-01-14 7 2008-01-14

8 2008-01-14 9 2008-01-14 10 2008-01-14 11 2008-01-14 12 2008-01-14 13 2008-01-14 14 2008-01-14

15 2008-01-14 16 2008-01-14 17 2008-01-14 18 2008-01-14 19 2008-01-14 20 2008-01-14 21 2008-01-14

22 2008-01-14 23 2008-01-14 24 2008-01-14 25 2008-01-14 26 2008-01-14 27 2008-01-14 28 2008-01-14

29 2008-01-14 30 2008-01-14 31 2008-01-14 32 2008-01-14 33 2008-01-23 34 2008-01-23 35 2008-10-03

36 2008-10-03 37 2008-10-04 38 2008-10-06 39 2008-10-06 40 2008-10-06 41 2008-10-06 42 2008-10-06

43 2008-10-06 44 2008-10-06 45 2008-10-06 46 2008-10-06 47 2008-10-06 48 2008-10-06 49 2008-10-06

50 2008-10-06 51 2008-10-06 52 2008-10-06 53 2008-10-06 54 2008-10-06 55 2008-10-06 56 2008-10-06

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PILOT was developed by the USGS Astrogeology Science Center/NASA PDS Imaging Node

Planetary Image Locator Tool

Identify your area of interest

The screenshot displays the PILOT interface for Mercury. The main map shows a grid with a red bounding box centered around 135°E longitude and 0° latitude. The bounding box coordinates are: Min Lon: 133.49179467, Max Lon: 137.0964181, Min Lat: 19.526865289, Max Lat: 67.1376964181. The interface includes a search bar with 'Total: 8832' results, a list of image thumbnails, and a table of image metadata.

Image ID	Date
1	2008-01-14
2	2008-01-14
3	2008-01-14
4	2008-01-14
5	2008-01-14
6	2008-01-14
7	2008-01-14
8	2008-01-14
9	2008-01-14
10	2008-01-14
11	2008-01-14
12	2008-01-14
13	2008-01-14
14	2008-01-14
15	2008-01-14
16	2008-01-14
17	2008-01-14
18	2008-01-14
19	2008-01-14
20	2008-01-14
21	2008-01-14
22	2008-01-14
23	2008-01-14
24	2008-01-14
25	2008-01-14
26	2008-01-14
27	2008-01-14
28	2008-01-14
29	2008-01-14
30	2008-01-14
31	2008-01-14
32	2008-01-14
33	2008-01-14
34	2008-01-14
35	2008-01-14
36	2008-01-14
37	2008-01-14
38	2008-01-14
39	2008-01-14
40	2008-01-14
41	2008-01-14
42	2008-01-14
43	2008-01-14
44	2008-01-14
45	2008-01-14
46	2008-01-14
47	2008-01-14
48	2008-01-14
49	2008-01-14
50	2008-01-14
51	2008-01-14
52	2008-01-14
53	2008-01-14
54	2008-01-14
55	2008-01-14
56	2008-01-14
57	2008-01-14
58	2008-01-14
59	2008-01-14
60	2008-01-14
61	2008-01-14
62	2008-01-14
63	2008-01-14

PDS Imaging Node

U.S. Geological Survey

Jet Propulsion Laboratory

46th LPSC MESSENGER Data Workshop

PLANETARY IMAGE LOCATOR TOOL

Use individual controls to display footprint, info, or to download:

The screenshot displays the PILOT (Planetary Image Locator Tool) interface. The main map on the left shows a red surface with a yellow footprint. A red arrow points from the footprint to a large preview window in the center, which displays a grayscale image of the Mars surface. Another red arrow points from the footprint to a grid of 44 small thumbnail images on the right, each labeled with a number and the date '2008-01-14'. The thumbnail labeled '25' is circled in red. The interface includes logos for USGS, PILOT, PDS, and NASA, along with navigation tabs and search controls.

PLANETARY IMAGE LOCATOR TOOL

Advanced Search Options are also available:

The screenshot displays the PILOT web interface. At the top, the USGS logo is on the left, the PILOT logo is in the center, and the PDS and NASA logos are on the right. Below the logos is a navigation bar with 'Home', 'Mercury', 'Missions', 'Map', 'Advanced', and 'Stats' buttons. The 'Advanced' button is circled in red. The main content area is divided into two panels. The left panel, titled 'MKS-MAC', contains several search criteria with input fields and sliders: 'Start Time' (2005-01-09 to 2014-09-17), 'Solar Longitude' (0 to 360), 'Mean Ground Resolution (mpp)' (0 to 115575), 'Minimum Phase Angle' (13 to 142), 'Maximum Phase Angle' (13 to 143), 'Minimum Incidence Angle' (0 to 120), 'Maximum Incidence Angle' (0 to 180), 'Minimum Emission Angle' (0 to 88), and 'Maximum Emission Angle' (1 to 90). A 'Clear Settings' button is at the bottom of this panel. The right panel shows a grid of 48 image thumbnails, each with a date '2008-01-14'. A large red arrow points from the search criteria to the grid. The top right of the right panel shows 'Total 6832' and 'Order [Date (ASC)]'. A large red arrow also points from the 'Advanced' button to the search criteria.

PLANETARY IMAGE LOCATOR TOOL

Select Images and Download Options

USGS science for a changing world

PILOT

PDS NASA

Mercury

Total 6832

Order Date (AS)

Select [g]

Select one or more image sets...

- Mariner 10 (1974)
 - VID A 2,007 mapped 1,248 unmapped
 - VID B 2,035 mapped 1,270 unmapped
- Messenger (2008 - 2014)
 - MDIS-NAAC 128,373 mapped 1,984 unmapped
 - MDIS-WAC 116,157 mapped 6,518 unmapped

Download or Process

- Download CSV file
- Download BASH script with wget calls
- Projection on the Web (POW)

Go!

1 2008-01-14 2 2008-01-14 3 2008-01-14 4 2008-01-14

5 2008-01-14 6 2008-01-14 7 2008-01-14 8 2008-01-14

9 2008-01-14 10 2008-01-14 11 2008-01-14 12 2008-01-14

13 2008-01-14 14 2008-01-14 15 2008-01-14 16 2008-01-14

17 2008-01-14 18 2008-01-14 19 2008-01-14 20 2008-01-14

21 2008-01-14 22 2008-01-14 23 2008-01-14 24 2008-01-14

25 2008-01-14 26 2008-01-14 27 2008-01-14 28 2008-01-14

29 2008-01-14 30 2008-01-14 31 2008-01-14 32 2008-01-14

PLANETARY IMAGE LOCATOR TOOL

The PILOT WGET Script can be used to download your selected images.

```
USAGE="USAGE: upcget-20130313.sh -t TARGET_DIR"
while [ $# -ge 1 ]; do
  case $1 in
    -t)  shift; $TARGET=$1 ;;
    -*)  echo $USAGE; exit 1 ;;
  esac
  shift
done

CURRENTDIR=`pwd`
if [ "$TARGET" != "" ]; then
  cd $TARGET
fi

wget -nd http://pdsimage.wr.usgs.gov/Missions/MESSENGER/MSGRMDS_
1001/DATA/2011_210/EN0220458374M.IMG
wget -nd http://pdsimage.wr.usgs.gov/Missions/MESSENGER/MSGRMDS_
1001/DATA/2012_102/EN0242632860M.IMG
wget -nd http://pdsimage.wr.usgs.gov/Missions/MESSENGER/MSGRMDS_
1001/DATA/2012_102/EN0242632883M.IMG
wget -nd http://pdsimage.wr.usgs.gov/Missions/MESSENGER/MSGRMDS_
1001/DATA/2012_198/EN0250966598M.IMG
wget -nd http://pdsimage.wr.usgs.gov/Missions/MESSENGER/MSGRMDS_
1001/DATA/2012_200/EN0251110393M.IMG
wget -nd http://pdsimage.wr.usgs.gov/Missions/MESSENGER/MSGRMDS_
1001/DATA/2012_201/EN0251167859M.IMG
wget -nd http://pdsimage.wr.usgs.gov/Missions/MESSENGER/MSGRMDS_
1001/DATA/2012_221/EN0252928369M.IMG
wget -nd http://pdsimage.wr.usgs.gov/Missions/MESSENGER/MSGRMDS_
1001/DATA/2012_222/EN0252985886M.IMG
wget -nd http://pdsimage.wr.usgs.gov/Missions/MESSENGER/MSGRMDS_
1001/DATA/2012_222/EN0252985892M.IMG
wget -nd http://pdsimage.wr.usgs.gov/Missions/MESSENGER/MSGRMDS_
1001/DATA/2012_222/EN0253014691M.IMG
wget -nd http://pdsimage.wr.usgs.gov/Missions/MESSENGER/MSGRMDS_
1001/DATA/2012_222/EN0253014695M.IMG
```

PDS GEOSCIENCES NODE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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PDS Geosciences Node

Washington University in St. Louis

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Scheduled Maintenance

This site will be down on the Thursday after the second Tuesday of the month between 7:00 and 9:30 pm Central Time for maintenance.

Welcome to the Geosciences Node

The Geosciences Node of NASA's Planetary Data System (PDS) archives and distributes digital data related to the study of the surfaces and interiors of terrestrial planetary bodies. We work directly with NASA missions to help them generate well-documented, permanent data archives. We provide data to NASA-sponsored researchers along with expert assistance in using the data. **All our archives are online and available to the public to download free of charge.**

Where's the Data?

Click on **DATA AND SERVICES** in the black navigation bar above to browse our data holdings.

Coming Soon

- March 20, 2013 - Part 2 (RDRs) of MSL Release 1
- April 1, 2013 - Odyssey Release 43
- May 24, 2013 - MER Release 36
- May 30, 2013 - MSL Release 2
- June 1, 2013 - MRO Release 25
- June 15, 2013 - LRO Release 14
- September 6, 2013 - MESSENGER Release 10
- October 11, 2013 - GRAIL Release 2

The Geosciences Node is part of the Earth and Planetary Remote Sensing Laboratory in the Department of Earth and Planetary Sciences at Washington University in St. Louis.

What's New

March 14, 2013. Release 13 of Lunar Reconnaissance Orbiter data is now online.

March 14, 2013. New Mars Express Radio Science data have been posted.

March 8, 2013. MESSENGER Release 9 data are posted. This is the first release of derived data products for most instruments.

March 1, 2013. The LRO Diviner Team will host a users forum at LPSC, March 17.

March 1, 2013. New MRO CRISM and raw Radio Science data are posted.

February 27, 2013. The first release of Mars Science Laboratory data is online.

February 22, 2013. Release 35 of Mars Exploration Rover data is now online.

What's New

March 8, 2013. Release 9 data are now online, covering the first six months of orbital operations (through September 17, 2011).

Sept. 7, 2012. Release 8 data are now online, covering the first 12 months of orbital operations (through March 25, 2012).

March 8, 2012. Release 7 data are now online, covering the first six months of orbital operations (through September 17, 2011).

Sept. 8, 2011. Release 6 data are now online, covering the period after the third flyby through the first two months of orbit around Mercury (October 15, 2009, through May 17, 2011).

April 27, 2010. MESSENGER MASCS CDR data is now online.

March 15, 2010. Release 5 data are now online, covering the period through the third Mercury flyby (October 14, 2009).

October 26, 2009. MESSENGER Ground Calibration saved data have been put online.

April 15, 2008. Release 4 data are now online, covering the period through the second Mercury flyby (October 20, 2008).

July 13, 2008. Release 3 data are now online, covering the period after the second Venus

PDS Nodes: PDS Atmospheres Geosciences Imaging NAIF PPI Rings Small Bodies

FIRSTGOV Your First Click to the U.S. Government

- + Freedom of Information Act
- + NASA 2003 Strategic Plan
- + NASA Privacy Statement, Disclaimer, and Accessibility Certification
- + Copyright/Image Use Policy

NASA

Curator: Susan Slavney
NASA Official: Raymond E. Arvidson
Last Updated: 14 Mar 2013
+ Comments and Questions

PDS Geosciences Node

Washington University in St. Louis

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Scheduled Maintenance

This site may be down on Thursdays between 7:00 and 9:30 pm Central Time for maintenance.

MESSENGER

The MESSENGER (Mercury Surface, Space Environment, Geochemistry and Ranging) mission was launched in August 2004 on a long journey to Mercury. The spacecraft completed one flyby of Earth, two of Venus, and three of Mercury before entering Mercury's orbit in March 2011. The orbital mission has been extended to March 2013.

March 8, 2013, MESSENGER Release 9, MESSENGER Release 9 includes raw and calibrated data acquired through September 17, 2012. This is also the first release to include derived data products for most instruments. Follow the links below for details.

What's New

March 8, 2013. Release 9 data are online. Raw and calibrated data go through September 17, 2012, and derived data for most instruments through March 25, 2012.

Sept. 7, 2012. Release 8 data are now online, covering the first 12 months of orbital operations (through March 25, 2012).

March 8, 2012. Release 7 data are now online, covering the first six months of orbital operations (through September 17, 2011).

Sept. 8, 2011. Release 6 data are now online, covering the period after the third flyby through the first two months of orbit around Mercury (October 15, 2009, through May 17, 2011).

April 27, 2010. MESSENGER MASCS CDR data is now online.

March 15, 2010. Release 5 data are now online, covering the period through the third Mercury flyby (October 14, 2009).

October 26, 2009. MESSENGER Ground Calibration saved data have been put online.

April 15, 2008. Release 4 data are now online, covering the period through the second Mercury flyby (October 20, 2008).

July 13, 2008. Release 3 data are now online, covering the period after the second Venus

Instruments and Archives

Instrument	PDS Archives
EPSS (Energetic Particle and Plasma Spectrometer)	EPSS Archive (at the PPI Node)
GRS (Gamma Ray Spectrometer) and NS (Neutron Spectrometer)	GRS and NS Archives
MAG (Magnetometer)	MAG Archive (at the PPI Node)
MASCS (Mercury Atmospheric and Surface Composition Spectrometer) includes: UVVIS (Ultraviolet/Visible Spectrometer) VIRS (Visible/Infrared Spectrograph)	MASCS Archive
MDIS (Mercury Dual Imaging System)	MDIS Archive (at the Imaging Node)
MLA (Mercury Laser Altimeter)	MLA Archive
Radio Science	Radio Science Archive
XRS (X-Ray Spectrometer)	XRS Archive
SPICE (Geometry and Navigation)	SPICE Archive at the NAIF Node
All	Ground Calibration Data

Online Tools

- Mercury Orbital Data Explorer (ODE) - Provides search, display, and download tools for selected MESSENGER data sets.

http://geo.pds.nasa.gov/

PDS Imaging Node

U.S. Geological Survey Jet Propulsion Laboratory

46th LPSC MESSENGER Data Workshop

MERCURY ORBITAL DATA EXPLORER

Beginning Your Search: Select Data Product Search,
Data Set Browser, Map Search, etc.

Mercury Orbital Data Explorer *PDS Geosciences Node*
Washington University in St. Louis

Home Data Product Search **Map Search** Tools Data Set Browser Download Help & Resources

WELCOME TO THE MERCURY ORBITAL DATA EXPLORER

The *PDS Geosciences Node Mercury Orbital Data Explorer (ODE)* provides search, display, and download tools for the PDS science data archives of the Messenger mission. **Choose one of the above tabs to start using ODE.**

- Data Product Search**
Search for orbital science products across missions, instruments, and data sets via time, location, and product ids.
- Additional Tools**
• [Product Type Coverage](#)
- Data Set Browser**
Browse through the orbital data set files stored in the PDS archives
- Download Cart**
Download products added to the cart from the product search
- What's New**
See what's new with ODE
- Help & Resources**
Access the ODE help, find additional resources, and see what's coming
- Available Data Sets**
A full list of mission, instrument, and product types available in Mercury ODE

[Mars ODE](#) [Lunar ODE](#)
[Mercury ODE](#) [Venus ODE](#)

The Mercury Orbital Data Explorer is produced by the [PDS Geosciences Node](#) at Washington University in St. Louis.
Send comments to odewebmaster@wunder.wustl.edu.

<http://ode.rsl.wustl.edu/mercury/index.aspx>

MERCURY ORBITAL DATA EXPLORER

PDS GEOSCIENCES NODE

HTTP://ODE.RSL.WUSTL.EDU/MERCURY/INDEXPRODUCTSEARCH.ASPX

Beginning Your Search: Select Data Set, Location, Feature, etc.

The screenshot displays the Mercury Orbital Data Explorer interface. The top navigation bar includes a Home button, a Data Product Search button, a Map Search button, a Tools button, a Data Set Browser button, and a Download button. The main content area is divided into four steps:

- STEP 1. SELECT DATA SETS TO SEARCH (A SELECTION IS REQUIRED)**: A dropdown menu is set to "Select One or More Desired Data Sets (Released PDS Archives)". A red arrow points from this menu to the "GRS - Gamma Ray Spectrometer" section in the product list.
- STEP 2. SET ADDITIONAL FILTERING PARAMETERS (OPTIONAL)**: Three filtering options are available: "Select a Product ID or filter by a partial Product ID", "Find by Product Location", and "Filter by Time Range". A blue arrow points from the "Find by Product Location" option to the "Find by Product Location" section in the product list.
- STEP 3. PREVIEW SEARCH RESULTS SUMMARY (OPTIONAL)**: A "Preview Search Results Summary" button is present.
- STEP 4. SUBMIT QUERY**: Two buttons are available: "View Results in Table" and "Select Results on Map Display". A checkbox for "Display Product Thumbnails on search results page" is checked.

The right-hand side of the interface shows a list of data products under the "MESSENGER" heading. The "GRS - Gamma Ray Spectrometer" section is circled in red. Below it, the "MDCS-NAC - Mercury Dual Imaging System - Narrow Angle Camera" section is circled in blue. The "Find by Product Location" section is also circled in blue and contains a form for selecting a specific feature, including fields for Feature Type, Feature Name, and a grid for selecting a search area on the planet's surface.

MERCURY ORBITAL DATA EXPLORER

Preview Your Results or Submit Query

processed in a certain way.

STEP 1. SELECT DATA SETS TO SEARCH (A SELECTION IS REQUIRED)

Select One or More Desired Data Sets (Released PDS Archives) (Show Options - 1 Parameter Set)

STEP 2. SET ADDITIONAL FILTERING PARAMETERS (OPTIONAL)

Select a Product ID or filter by a partial Product ID (Show Options - 0 Parameters Set)

Find by Product Location (Show Options - 0 Parameters Set)

Filter by Time Range (Hide Options - 2 Parameters Set)

Select Desired Time Range Enter a single value or a range. Example Range

Observation Time (UTC) 2012-03-01 to 2012-03-02 1999-02-28T00:00:00.000 to 2012-05-21T17:03:36.000

Observation Time (UTC) - the midpoint time between observation start and stop time, e.g. 2007-05-24T12:59:59
Creation Date (UTC) - the time when a product was created, e.g. 2007-05-24T12:59:59

STEP 3. PREVIEW SEARCH RESULTS SUMMARY (OPTIONAL)

Preview Search Results Summary

Product Type	Search Results Count
MESSENGER MDIS-NAC CDRNAC	874
Total Products Found	874

STEP 4. SUBMIT QUERY

Display Product Thumbnails on search results page

MERCURY ORBITAL DATA EXPLORER

Viewing Your Results, More Information

The screenshot displays the Mercury Orbital Data Explorer interface. At the top, there is a navigation bar with a home icon, 'Data Product Search', 'Map Search', 'Tools', 'Data Set Browser', 'Download', and 'Help & Resources'. Below this is a 'SEARCH RESULTS' section with buttons for 'Output Results', 'View on Map', and 'Back To Search'. A 'Products Found: 874' summary is shown with a 'Display Product Thumbnails' checkbox and an 'Update Cart' button. A table of search results follows, with columns for 'Instrument', 'Type', 'Product ID', and 'Obs Time'. The table lists several products from the MESSENGER MDIS-NAC CDRNAC instrument. A red circle highlights the 'Product ID' 'CN0239076795M_RA_3' in the table, and a red arrow points from this circle to the detailed view on the right. The detailed view shows the product name 'CN0239076795M_RA_3' circled in red, followed by a list of links: 'More About this Product Type (help page)', 'PDS Volume', 'AAREADME.TXT', 'ERRATA.TXT', 'Catalog Files', 'Data Product Software Interface Specification (PDF)', and 'PDS Source Location Instrument Website'. Below these links are buttons for 'Browse', 'Meta Data', 'Label', and 'Related Products'. At the bottom of the detailed view is a 'Browse Image' section with a note: 'Browse Image - the image below is not the actual data product'. Below this note is a grayscale image of the Mercury surface showing two prominent impact craters.

Instrument	Type	Product ID	Obs Time
MESSENGER MDIS-NAC	CDRNAC	CN0239074534M_IF_3	2012-03-01T07:31:08.834
MESSENGER MDIS-NAC	CDRNAC	CN0239074534M_RA_3	2012-03-01T07:31:08.834
MESSENGER MDIS-NAC	CDRNAC	CN0239075154M_IF_3	2012-03-01T07:41:28.835
MESSENGER MDIS-NAC	CDRNAC	CN0239075154M_RA_3	2012-03-01T07:41:28.835
MESSENGER MDIS-NAC	CDRNAC	CN0239076791M_IF_3	2012-03-01T08:08:45.837
MESSENGER MDIS-NAC	CDRNAC	CN0239076791M_RA_3	2012-03-01T08:08:45.837
MESSENGER MDIS-NAC	CDRNAC	CN0239076795M_IF_3	2012-03-01T08:08:49.837
MESSENGER MDIS-NAC	CDRNAC	CN0239076795M_RA_3	2012-03-01T08:08:49.837
MESSENGER MDIS-NAC	CDRNAC	CN0239076799M_IF_3	2012-03-01T08:08:53.837
MESSENGER MDIS-NAC	CDRNAC	CN0239076799M_RA_3	2012-03-01T08:08:53.837
MESSENGER MDIS-NAC	CDRNAC	CN0239076819M_IF_3	2012-03-01T08:09:13.838

MERCURY ORBITAL DATA EXPLORER

Results can be viewed on Map

The screenshot displays the Mercury Orbital Data Explorer interface. At the top, there is a navigation bar with buttons for Home, Data Product Search, Map Search, Tools, Data Set Browser, Download, and Help & Resources. Below this, the 'SEARCH RESULTS' section shows 'Products Found: 874' and a 'Display Product Thumbnails' checkbox. A table lists search results with columns for Instrument, Type, Product ID, and Obs Time. A red circle highlights the 'View on Map' button, with a red arrow pointing to the map view on the right. The map view shows a cylindrical projection of Mercury with various data layers overlaid. A legend on the left of the map lists available layers, including various MESSENGER instruments and data types.

Instrument	Type	Product ID	Obs Time
MESSENGER MDIS-NAC	CDRNAC	CN0239074534M_IF_3	2012-03-01T07:31:08.834
MESSENGER MDIS-NAC	CDRNAC	CN0239074534M_RA_3	2012-03-01T07:31:08.834
MESSENGER MDIS-NAC	CDRNAC	CN0239075154M_IF_3	2012-03-01T07:41:28.835
MESSENGER MDIS-NAC	CDRNAC	CN0239075154M_RA_3	2012-03-01T07:41:28.835
MESSENGER MDIS-NAC	CDRNAC	CN0239076791M_IF_3	2012-03-01T08:08:45.837
MESSENGER MDIS-NAC	CDRNAC	CN0239076791M_RA_3	2012-03-01T08:08:45.837
MESSENGER MDIS-NAC	CDRNAC	CN0239076795M_IF_3	2012-03-01T08:08:49.837
MESSENGER MDIS-NAC	CDRNAC	CN0239076795M_RA_3	2012-03-01T08:08:49.837
MESSENGER MDIS-NAC	CDRNAC	CN0239076799M_IF_3	2012-03-01T08:08:53.837
MESSENGER MDIS-NAC	CDRNAC	CN0239076799M_RA_3	2012-03-01T08:08:53.837
MESSENGER MDIS-NAC	CDRNAC	CN0239076819M_IF_3	2012-03-01T08:09:13.838

MERCURY ORBITAL DATA EXPLORER

Data Set Browser: Find data by Data Set ID and Volume

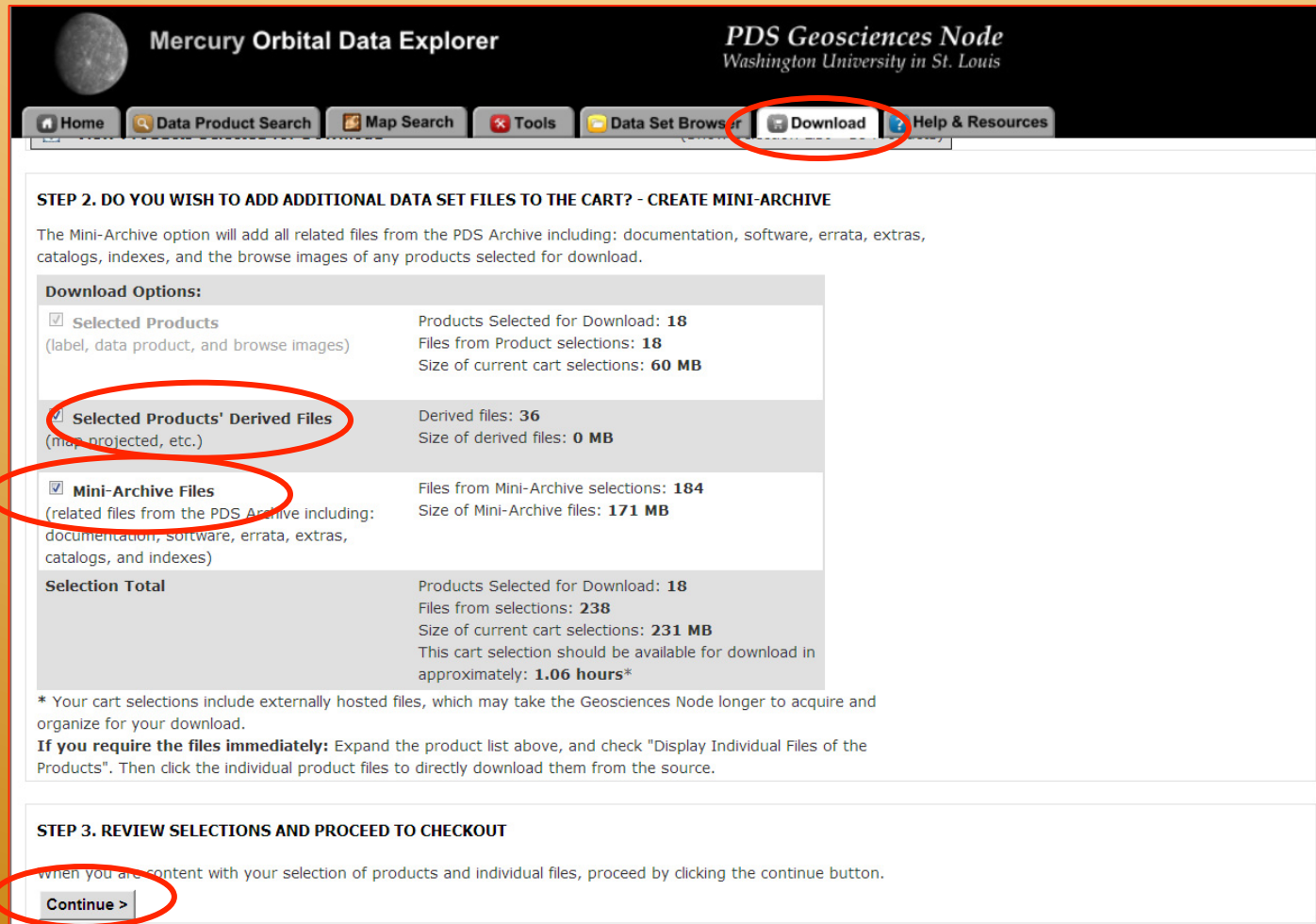
The screenshot displays the Mercury Orbital Data Explorer website. At the top, there is a navigation bar with a logo of Mercury and the text "Mercury Orbital Data Explorer" and "PDS Geosciences Node Washington University in St. Louis". Below the navigation bar are several buttons: "Home", "Data Product Search", "Map Search", "Tools", "Data Set Browser" (circled in red), "Download", and "Help & Resources".

The main content area is titled "MERCURY DATA SET BROWSER" and includes a "Reset Page" button. Below the title is a paragraph explaining that planetary science data in PDS is organized by data sets, which are collections of related data products. It also states that the Data Set Browser allows users to view data set contents currently cataloged in the ODE system.

Underneath, there are navigation options for "Top Level" and "Mission", with "Start" and "MESSENGER" links. A tree view of instrument folders is shown, with "MDIS-NAC", "MDIS-WAC", and "MDIS-WAC/NAC" folders circled in red. Other folders listed include "GBS", "MASCS", "MIA", "NS", "BSS", and "XBS".

MERCURY ORBITAL DATA EXPLORER

Requesting Your Files, Creating a Mini-Archive



The screenshot shows the Mercury Orbital Data Explorer interface. At the top, there is a navigation bar with a 'Download' button circled in red. Below the navigation bar, the page is titled 'STEP 2. DO YOU WISH TO ADD ADDITIONAL DATA SET FILES TO THE CART? - CREATE MINI-ARCHIVE'. The text explains that the Mini-Archive option will add all related files from the PDS Archive, including documentation, software, errata, extras, catalogs, indexes, and browse images of products selected for download.

Download Options:

<input checked="" type="checkbox"/> Selected Products (label, data product, and browse images)	Products Selected for Download: 18 Files from Product selections: 18 Size of current cart selections: 60 MB
<input checked="" type="checkbox"/> Selected Products' Derived Files (map, projected, etc.)	Derived files: 36 Size of derived files: 0 MB
<input checked="" type="checkbox"/> Mini-Archive Files (related files from the PDS Archive including: documentation, software, errata, extras, catalogs, and indexes)	Files from Mini-Archive selections: 184 Size of Mini-Archive files: 171 MB
Selection Total	Products Selected for Download: 18 Files from selections: 238 Size of current cart selections: 231 MB This cart selection should be available for download in approximately: 1.06 hours*

* Your cart selections include externally hosted files, which may take the Geosciences Node longer to acquire and organize for your download.
If you require the files immediately: Expand the product list above, and check "Display Individual Files of the Products". Then click the individual product files to directly download them from the source.

STEP 3. REVIEW SELECTIONS AND PROCEED TO CHECKOUT

When you are content with your selection of products and individual files, proceed by clicking the continue button.

Continue >

MERCURY ORBITAL DATA EXPLORER

Choose a Format, Enter E-mail Address, Submit Request

MERCURY ORBITAL DATA EXPLORER

You will receive email with instructions for accessing your data:

The files that you have requested from the PDS Geosciences Node have been placed in an FTP folder for you.

Your requested files are located at the following FTP address:

<ftp://geoftp.wustl.edu/20130308T154642942>

Username: geoftp

Password: Odeuser1

The files will remain on the FTP site for 7 days. If you experience problems with our FTP site, contact odewebmaster@wunder.wustl.edu

PDS Geosciences Node
Washington University in St. Louis

QUESTIONS?

Important URLs

PDS Imaging Node: <http://img.pds.nasa.gov/>

PDS Data Portal: <http://img.pds.nasa.gov/portal/>

PDS IN Online Volumes: <http://img.pds.nasa.gov/volumes/mess.html>

PDS Planetary Image Atlas:

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

PDS PILOT: <http://pilot.wr.usgs.gov/>

Geosciences Orbital Data Explorer:

<http://ode.rsl.wustl.edu/mercury/index.aspx>

PDS Map-A-Planet: <http://www.mapaplanet.org>

For More Information, Contact Us

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Thank You!