# PDS ORBITAL DATA EXPLORER AND THE LATEST UPDATE FOR PDS4

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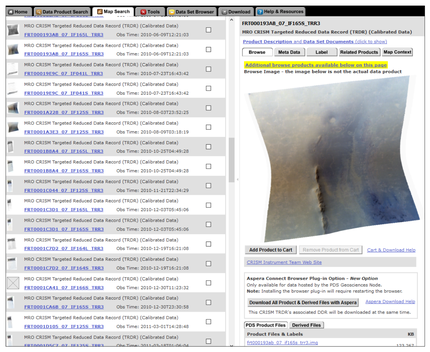
## Overview

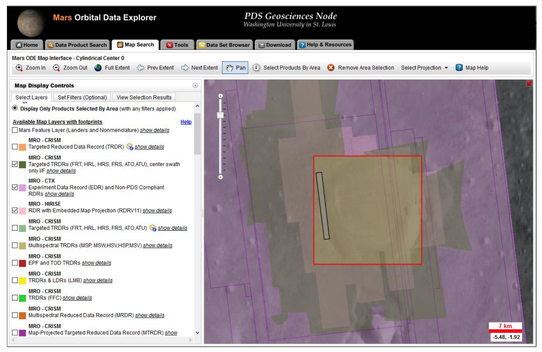
https://ode.rsl.wustl.edu/

The Orbital Data Explorer (ODE) is a web-based search tool developed at NASA's Planetary Data System's (PDS) Geosciences Node. ODE provides online search, display, and download functionality for retrieval of PDS3 and PDS4 archives of orbital data products from planetary missions to Mars, the Earth's Moon, Mercury, and Venus. ODE includes access to archives at the PDS Geosciences and other nodes.

### Form- and Map- Based Searches Across Missions and Instruments

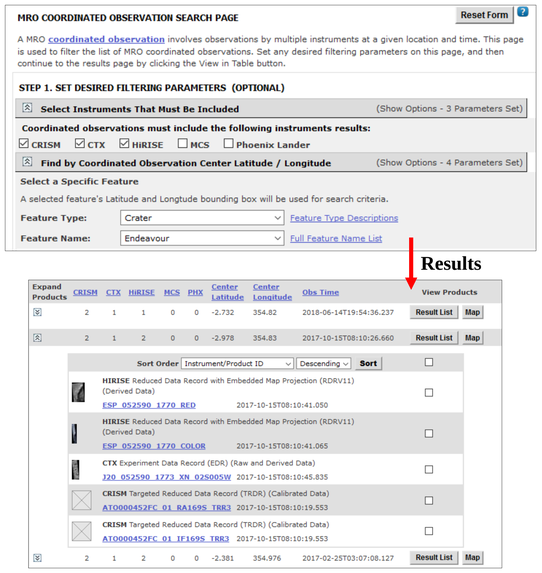
Search By
- Data set (mission, instrument, processing level, observation type)
- Product Identifier
- Product location / feature coverage
- UTC time range
- Observation angles





### MRO Coordinated Observation Search

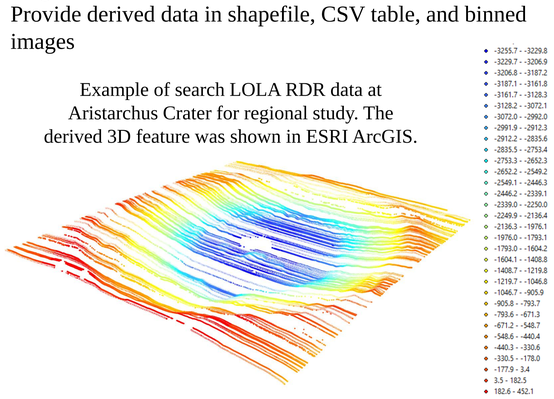
Find and view MRO CRISM, CTX, HiRISE, and MCS products that resulted from planned coordinated observations



### Granular Data Search (GDS)

- Retrieve sub-set of point data from MOLA, LOLA, DIVINER and MLA datasets based on location, UTC Time range, and additional filters
- Provide derived data in shapefile, CSV table, and binned images

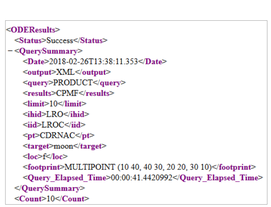
Example of search LOLA RDR data at Aristarchus Crater for regional study. The derived 3D feature was shown in ESRI ArcGIS.



### Rest Interface

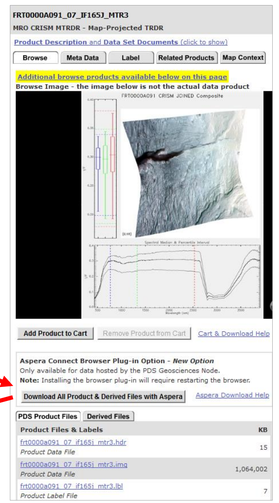
https://oderest.rsl.wustl.edu

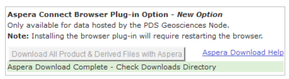
Directly query ODE through the ODE REST interface



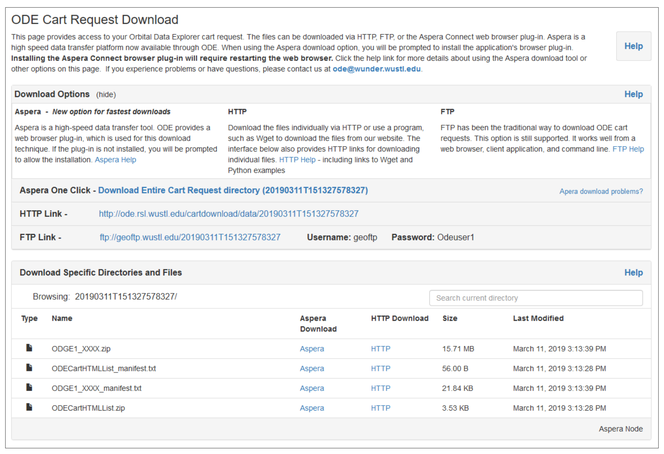
### Data Retrieval

- Support single-click download of product files using Aspera (http://asperasoft.com), which provides a web browser plug-in to facilitate high-speed file transfers between the transfer servers and remote website users.
  - PDS label
  - Data files
  - Browse images
  - Format files
  - Derived files





- Cart Download
  - Support single-click download of all requested files through Aspera web browser plug-in
  - Provide HTTP and FTP links for users who prefer to download files through a client application, different web browser plug-in, a local script, or directly through the web browser
  - Support browsing and downloading specific files through Aspera or HTTP links



### Tool - Footprint Coverage Explorer

Forms of coverage maps generated by ODE for download

- KML/KMZ coverage maps for Google Mars/Moon
- Shapefile

## ODE PDS4 Updates

### Supported Mission Data Inventory

| Mars Missions | Lunar Missions |
|---|---|
| MRO * Release 48 | LRO * Release 37 |
| Odyssey * Release 66 | ISRO's Chandrayaan-1 * |
| Mars Express * | GRAIL * |
| MGS * | Clementine * |
| Viking Orbiter * | Lunar Prospector * |
| | Lunar Orbiter * |

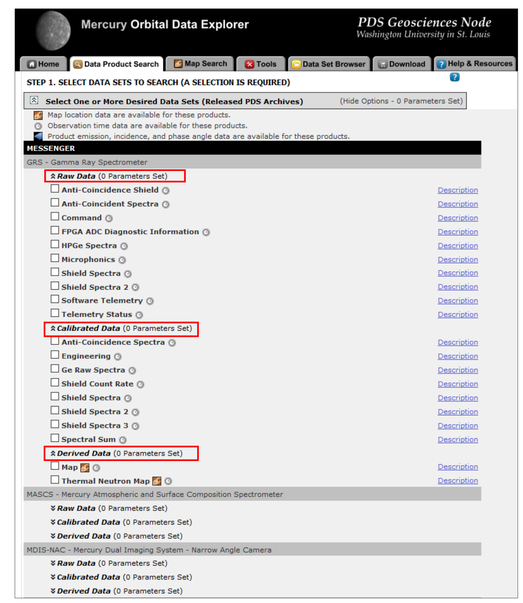
| Mercury Mission | Venus Missions |
|---|---|
| MESSENGER * | Magellan * |
| | MESSENGER * - Venus observations |

- * represents live missions
- * represents ended missions

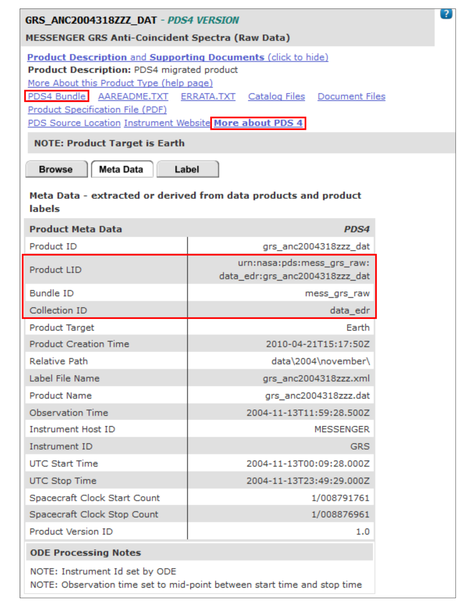
- Loaded recently migrated MESSENGER PDS4 data products from GRS (Gamma-Ray Spectrometer), NS (Neutron Spectrometer), MLA, XRS (X-Ray Spectrometer), and derived Radio Science archives
- Implemented database infrastructure to support future PDS4 data bundles and data migrations

### PDS4 Updates to the ODE Website Interface

- Products form-based search grouped by missions, instruments, and PDS4 standard processing levels
- More user friendly product type names displayed in the data product search page, the search results list, and other product lists of ODE, rather than product type abbreviations

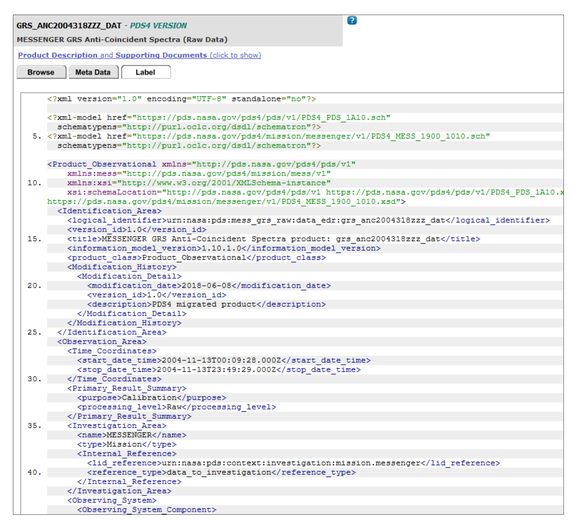


- Display PDS4-specific information such as PDS4 product logical identifiers (LIDs), bundle and collection identifiers in the product detail page when available
- Provide links to the associated PDS4 bundles, and links to more about PDS4, such as documentation and tutorials

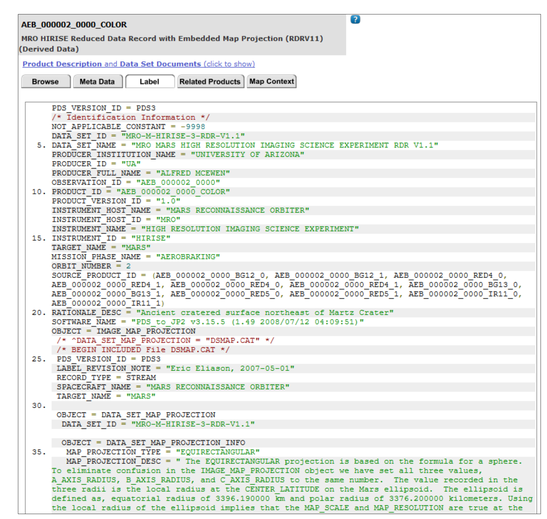


- Improved highlighting for both PDS4 XML and PDS3 labels

- Example of PDS4 XML label display



- Example of PDS3 label display



User feedback is welcomed to help plan additional enhancements. Specific questions and comments about ODE can be sent to ode@wunder.wustl.edu.