

Introduction PDS Geosciences Node Data Sets and Analysis Tools

Ray Arvidson and Scott VanBommel
Washington University in Saint Louis
52nd DPS (Virtual Meeting)

Webinar
10/26/20

To enter a tutorial session, click on “Let’s talk” at the **PDS Exhibitor Booth** at the DPS web site.

Tutorials

MRO CRISM Hyperspectral Data Sets and Analysis Tools

*Monday, October 26
2:30 to 3:30 PM EDT*

Mars Rover In Situ X-ray Compositional Data Sets and Analysis Tools

*Tuesday, October 27
3:00 to 4:00 PM EDT*

Content and Use of PDS Geosciences Node Orbital Data Explorers

• *Wednesday, October 28
4:00 to 5:00 PM EDT*

Content and Use of PDS Geosciences Node Landed Mission Analyst Notebooks

*Thursday, October 29
3:00 to 4:00 PM EDT*

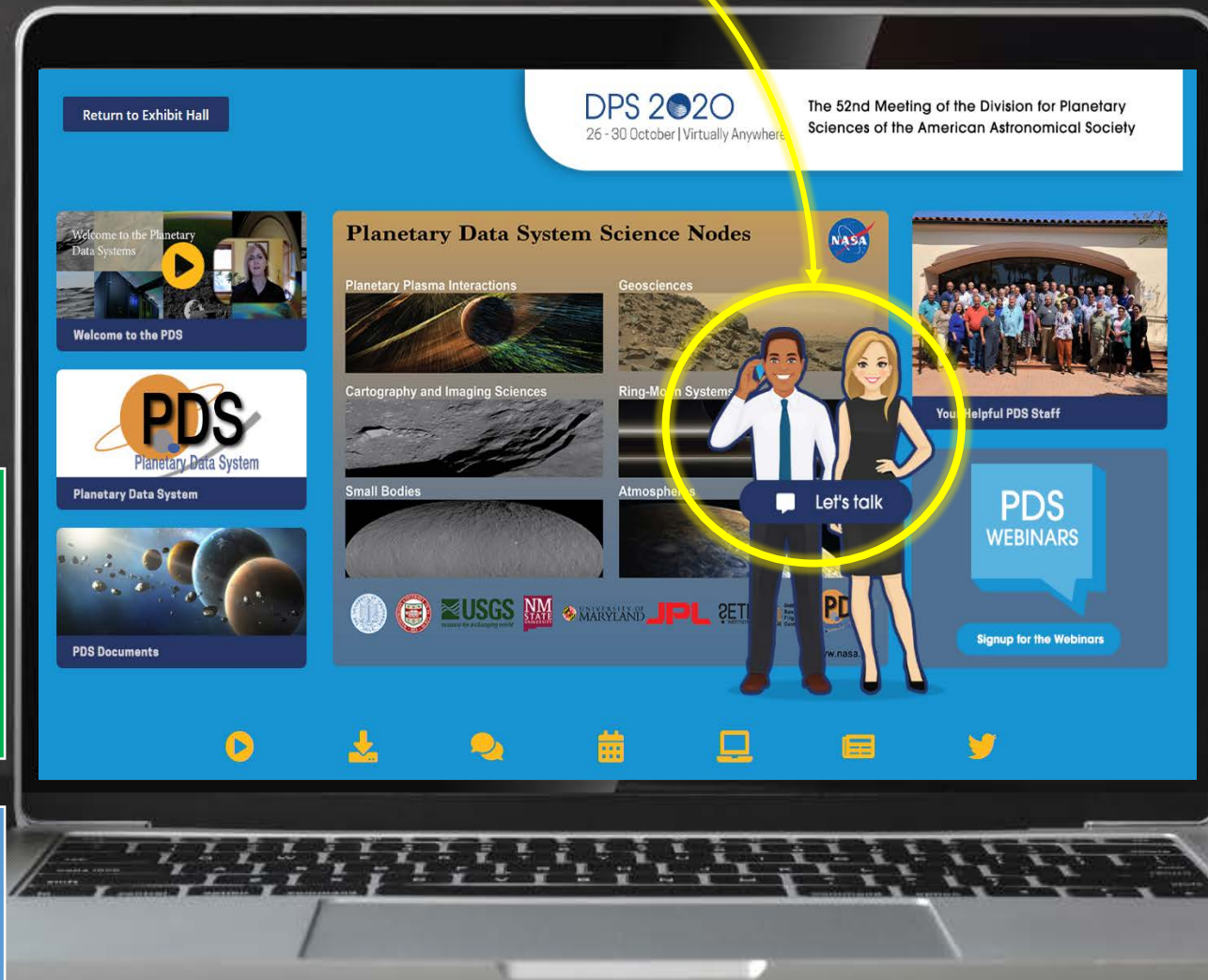
Webinars

Introduction to PDS Geosciences Node Data Sets and Analysis Tools

*Monday, October 26
12:00 to 12:30 PM EDT*

Introduction to PDS Geosciences Node Orbital Data Explorers and Landed Mission Analyst Notebooks

*Wednesday, October 28
2:00 to 2:30 PM EDT*



PDS: Science-Driven Distributed Data System*

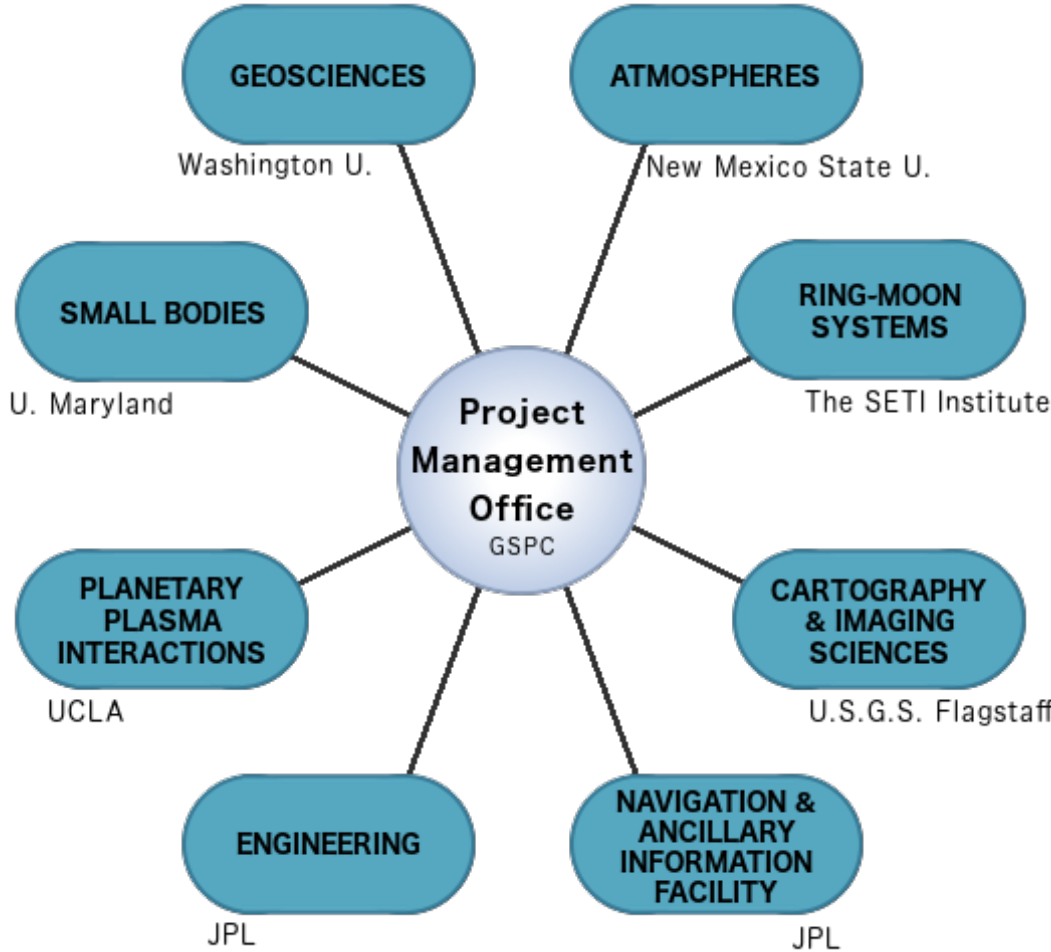
PDS Program Scientist: Becky McCauley Rench, NASA HQ

PDS Program Executive: Meagan Thompson, NASA HQ

PDS Project Manager: Tim McClanahan, NASA GSFC

PDS Chief Scientist: Louise Prockter, JHU/APL

*Developed in response to recommendations from the NAS/NRC Space Science Board, Committee on Data Management and Computation, to place archives under control of scientists who use the data sets



Geosciences Node Overview

- Our charter is to archive mission and individual provider data for Mercury, Venus, Earth's Moon, and Mars, to enable users to search, access, and process the data sets, and to provide expert assistance.
- Interactions with the research community
 - Help users find and use the data by providing tools such as the Orbital Data Explorer, Analyst's Notebook, and Spectral Library.
 - Maintain an online presence with the Geosciences Node web site and user forums.
 - Meet our user community in person at conferences such as the annual Lunar and Planetary Science Conference (LPSC) to answer questions, demonstrate our tools, and receive feedback, including two webinars and four Zoom interactive tutorial sessions at this DPS meeting.
 - Host or support user workshops for data sets of high interest, such as those listed on our Workshops page.
 - Work closely with mission instrument teams and individual data providers to help them prepare their archives to meet PDS standards.
 - Provide DOIs for our PDS3 data sets and PDS4 bundles in order to ensure proper citation of these resources in scientific papers.
- Behind the scenes
 - Active in PDS internal working groups, such as the Data Design Working Group, Software Working Group, Document Authors Team, Document Review Team, Change Control Board, Data Dictionary Stewards, and PDS API Working Group.
 - Active in the International Planetary Data Alliance to encourage the adoption of PDS4 standards by other national space agencies.

Geosciences Node Web Pages and Tools

- Geosciences Node Web Page: <https://pds-geosciences.wustl.edu/>
- Geosciences Node User Forum: <https://geoweb.rsl.wustl.edu/community/>
- Orbital Data Explorer (ODE): <https://ode.rsl.wustl.edu/>
- Analyst's Notebook (AN): <https://an.rsl.wustl.edu/>
- Spectral Library: <https://pds-geosciences.wustl.edu/spectrallibrary/>
- Host for Brown University's RELAB spectral data and catalog
- Archive volume ~256 terabytes, ~49 million files
- Tools: CRISM and OMEGA Analysis Tools, Interactive Analyst Notebooks, Orbital Data Explorer granular search and access, Spectral Library interactive plotting, expert advice on use of non-PDS tools

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

+ NASA Homepage
+ NASA en Español
+ Contact NASA

PDS Geosciences Node

Washington University in St. Louis

HOME DATA AND SERVICES TOOLS ABOUT US CONTACT US SITE MAP

Services

- Analyst's Notebook
- Orbital Data Explorers
- Spectral Library
- Virtual Astronaut
- FTP Access
- Workshops

Geosciences Node Data

- Mars
- Venus
- Mercury
- Moon
- Earth
- Asteroids
- Radio Science
- Gravity Models
- All Geosciences DOIs
- All Geosciences Data Holdings

Help

- Frequently Asked Questions
- Geosciences Node Forums
- Help for Data Users
- Help for Data Reviewers
- Help for Proposers
- About PDS4
- About Checksums
- Cite PDS On Your Poster
- Email Us

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.

Need a DOI?

We're working on acquiring DOIs for all of our data sets. In the meantime, if you need a DOI for a particular data set, please **contact us**.

Coming Soon

- Dec. 1, 2020 - **MRO** Release 55
- Dec. 4, 2020 - **MSL** Release 25
- Dec. 15, 2020 - **LRO** Release 44
- Jan. 4, 2021 - **InSight** Release 7
- Jan. 4, 2021 - **Odyssey** Release 74

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 .

DPS 2020

The Geosciences Node will be participating in 2 webinars and 4 interactive Zoom sessions at the **DPS meeting** October 26-29, 2020.

What's New

October 19, 2020. SHARAD EDR and RDR data from ASI for MRO Release 54 are now available. Also posted are missing SHARAD RDRs from previous MRO Release 24.

October 16, 2020. LCROSS spacecraft data sets have been migrated to the PDS4 archive standard.

October 15, 2020. New Mars Express SPICAM data are posted.

October 6, 2020. New Mars Express OMEGA data are posted.

October 2, 2020. New Mars Express SPICAM reduced data sets are now online.

What's Old

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

FIRST GOV
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. Avidson
Last Updated: 21 Oct 2020
+ Comments and Questions

Geosciences Node: Mission Archiving

Active Missions	Experiments Archived at Geo	# PDS3 Data Sets / PDS4 Bundles
*Mars Odyssey	GRS Suite (GRS/NS/HEND), Radio Science	9
*MRO	CRISM, SHARAD, Radio Science	14
*LRO	Diviner, LEND, LOLA, Mini-RF, Radio Science	20
*MSL	APXS, ChemCam, CheMin, DAN, SAM	16
*InSight	HP3/Radiometer, IDA, RISE, SEIS	4
Mars Express (ESA)	ASPERA, HRSC, MaRS, PFS, MARSIS, OMEGA, SPICAM	23
Total accumulating data sets / bundles		86

Developing Missions	Experiments Archived at Geo	# PDS4 Bundles
*†Mars 2020 Rover	PIXL, SHERLOC, RIMFAX, SuperCam, Returned Sample Science	5
Europa Clipper Orbiter	MISE, REASON, Radio Science, Gravity	2
*Dragonfly (Titan)	DrACO, DraMS, DraGNS, DraGMet	4
Astrobotic Mission One (lunar)	NMLS	1
*VIPER (lunar)	Mass spectrometer, Near-IR spectrometer, neutron spectrometer, TRIDENT drill	4
Lunar Trailblazer	MVM3 (High-resolution Volatiles and Minerals Moon Mapper) and LTM (Lunar Thermal Mapper)	3
Total accumulating bundles		21

*We are the Lead Node, responsible for coordinating archiving among all PDS nodes involved in the mission.

†At request of Mars 2020 Project (Perseverance rover), we are leading the data product design for non-imaging instruments.

Geosciences Node: Individual Data Providers

- We're working with 44 individual data providers who are at various stages of preparing their archive submissions resulting from their work under NASA programs such as PDART, MDAP, and SSW.
- We report individual data provider archiving status to NASA Headquarters on a quarterly basis.
- We help proposers understand what they need for data management plans in their proposals, and we work with selected investigators to develop plans and schedules for archive development, implementation, and peer reviews to ensure receipt of quality archival products.
- Archives are ingested into the Geosciences Node and made available to the community through our web interfaces and search engines.

Data Discoverability & Usability Example: Spectral Library

- Our Spectral Library provides a web interface for searching, displaying, and downloading laboratory-based and other spectral data.
- The initial version of the Spectral Library, developed in collaboration with Professor Ralph Milliken, Brown University, under a PDART grant, includes the large database of spectra and associated information (~18,000 entries) from the RELAB (Reflectance Laboratory) facility at Brown University.
- We are now the host for the RELAB database and catalog for existing and future spectral data from the Brown University facility, in addition to other data sets from Individual Providers.

Geosciences Node Staff

Name	Position	Email	Phone
Ray Arvidson	Node Manager	arvidsonATwunder.wustl.edu	314-935-5609
Ed Guinness	Deputy Node Manager	guinnessATwunder.wustl.edu	314-935-5493
Lars Arvidson	System Administrator	larsATwunder.wustl.edu	314-935-8555
Daniel Politte	Software Developer, Archivist	politteATwunder.wustl.edu	314-935-6485
Dan Scholes	Software Developer	scholesATwunder.wustl.edu	314-935-8688
Susie Slavney	Lead Archivist	susan.slavneyATwustl.edu	314-935-9295
Tom Stein	Senior Node Engineer	steinATwunder.wustl.edu	314-935-5744
Scott VanBommel	Research Scientist	vanbommelATwunder.wustl.edu	314-935-8594
June Wang	Archivist	wangATwunder.wustl.edu	314-935-7033
Jenn Ward	Archivist at JHUAPL	wardATwunder.wustl.edu	240-228-8202
Andrew White	Archivist	andrew.r.whiteATwustl.edu	314-935-5970
Feng Zhou	Software Developer	chowATwunder.wustl.edu	314-935-3551

Questions or Comments?