PDS GEOSCIENCES NODE DATA AND SERVICES

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WHO WE ARE

The Geosciences Node is one of eight nodes of NASA's Planetary Data System, focused on archiving digital data of the **surfaces and interiors of terrestrial planets and satellites**.

DATA

All of our archives from missions and individual data providers are peer reviewed and comply with PDS standards for archive-quality science data.

The end result is high-quality, well-documented, permanent archives available to the science community.

Current holdings:

- ~ **265 terabytes of digital data**
- 510 data sets
- ~ 4.35 terabytes of new data per quarter in FY21
- 7 current planetary missions, 29 past missions
- 30 data sets from individual providers
- First Mars 2020 release on August 20, 2021

In the works:

- Geoscience data from **VIPER, Europa Clipper, Lunar Trailblazer, and Dragonfly**
- Data in preparation from 51 individual data providers

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PDS GEOSCIENCES NODE ARCHIVES OF ACTIVE AND DEVELOPING MISSIONS

Active Missions	Science Experiments
Mars 2020*	PIXL, RIMFAX, SHERLOC, SuperCam, Returned Sample Science
InSight*	HP3, RAD, RISE, SEIS, IDA
MSL*	APXS, ChemCam, CheMin, DAN, SAM
MRO*	CRISM, SHARAD, Radio Science
LRO*	Diviner, LEND, LOLA, Mini-RF, Radio Science
Mars Express	ASPERA, HRSC, MaRS, PFS, MARSIS, OMEGA, SPICAM, SPICE
Mars Odyssey*	GRS, HEND, NS, Radio Science
Developing Missions	**Science Experiments**
VIPER*	MSolo, NIRVSS, NSS, TRIDENT, Rover Imaging
Europa Clipper	MISE, REASON
Lunar Trailblazer*	HVM3, LTM
Dragonfly*	DraMS, DraGNS, DraGMet
* Lead PDS Node	

SERVICES

The Geosciences Node web site is the primary interface to our user community.

Organized by planet, mission, instrument, and data set, **all of our holdings are online and free to download**.

We offer several services to help users locate and download data of interest: the Orbital Data Explorers (ODE), the Analyst's Notebooks (AN), and the Spectral Library (SL). Our community forum is available to provide expert answers to user questions.

CLOUD COMPUTING

We are beginning to investigate methods by which end-users can use advanced cloud processing techniques to analyze our data.

We completed a pilot study in which we conducted cloud-based data analysis of our CRISM archives stored in the online Azure cloud.

This pilot, an experiment into "elastic computing," provided key lessons on pros and cons of cloud-based computing.

Eventually we plan to allow users to analyze data in the cloud using software in the cloud, rather than having to download data and install software on their own systems.

MIGRATING PDS3 DATA TO PDS4

NASA has requested that PDS nodes migrate their data archived under the previous PDS standard, PDS3, to the current PDS4 standard wherever possible.

The Geosciences Node is implementing a long-term plan to convert almost all our holdings to PDS4.

PDS3 TO PDS4 MIGRATION STATUS

PDS3 Mission Archives at the Geosciences Node	PDS4 Migration Status and Schedule
MER	Complete
MESSENGER	Complete
Chandrayaan-1	Complete
Lunar Prospector	Complete
LCROSS	Complete
LRO	In progress FY21-FY22
Clementine (orbiter)	FY22
GRAIL (orbiter)	FY22
Apollo	FY22
Magellan (orbiter)	In progress FY21-FY23
MGS (orbiter)	FY23-FY25
Mars Phoenix Lander	FY23
Viking (lander, orbiters)	FY25-FY26
Mars Pathfinder (lander, rover)	FY26

CLOUD COMPUTING PILOT
Politte et al., LPSC 52 (2021) #2396
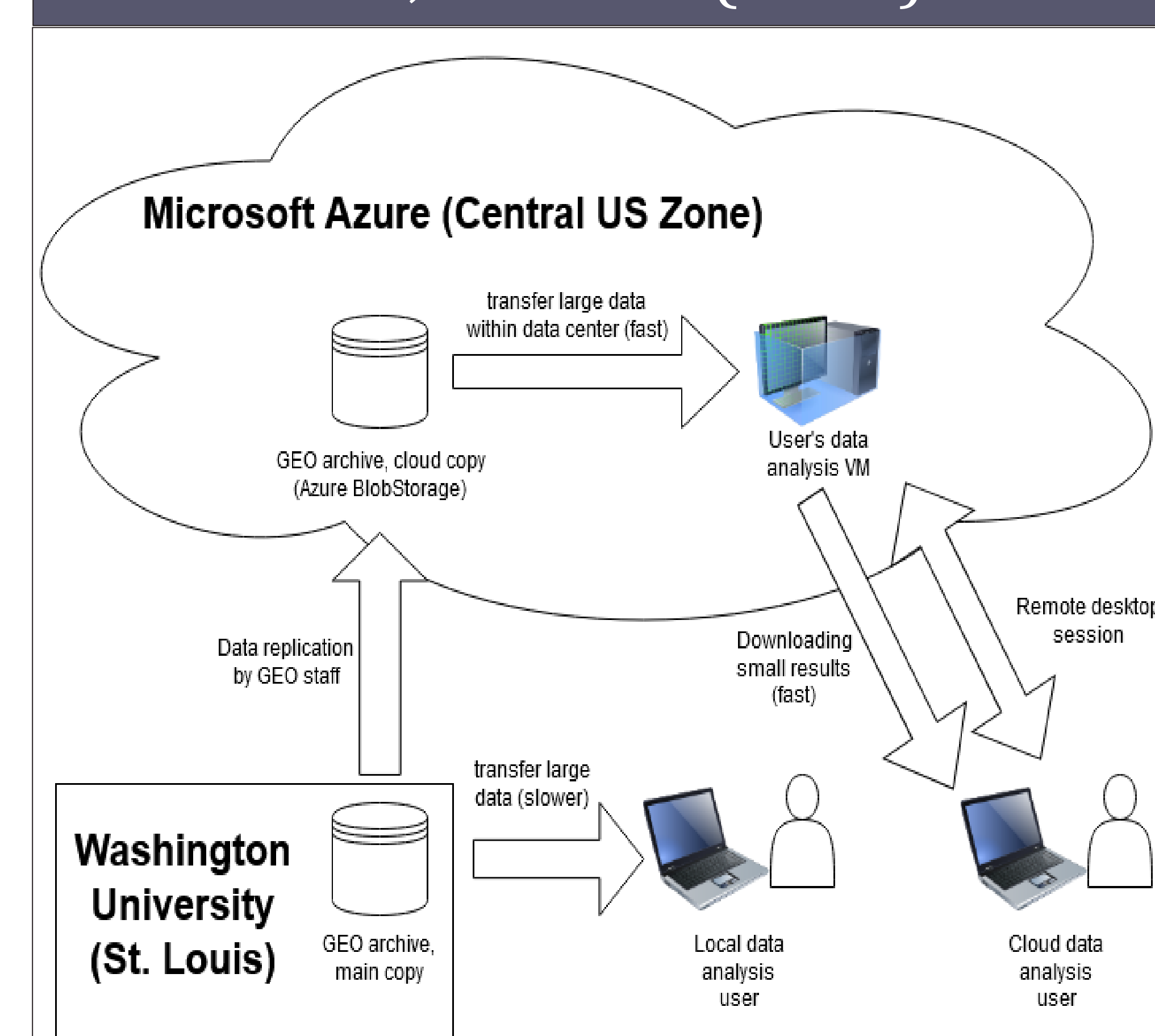
WHERE TO FIND A DOI

The Geosciences Node website includes a listing of Digital Object Identifiers (DOIs) for all of our datasets: https://pds-geosciences.wustl.edu/dataserv/doi.htm

If you don't see the DOI you need, please contact us at geosci@wunder.wustl.edu.