

# Content and Use of PDS Geosciences Node Orbital Data Explorers

Dan Scholes and Ray Arvidson  
Washington University in Saint Louis  
52<sup>nd</sup> DPS (Virtual Meeting)  
Zoom Session  
10/28/20, 4:00pm to 5:00pm, EDT

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*

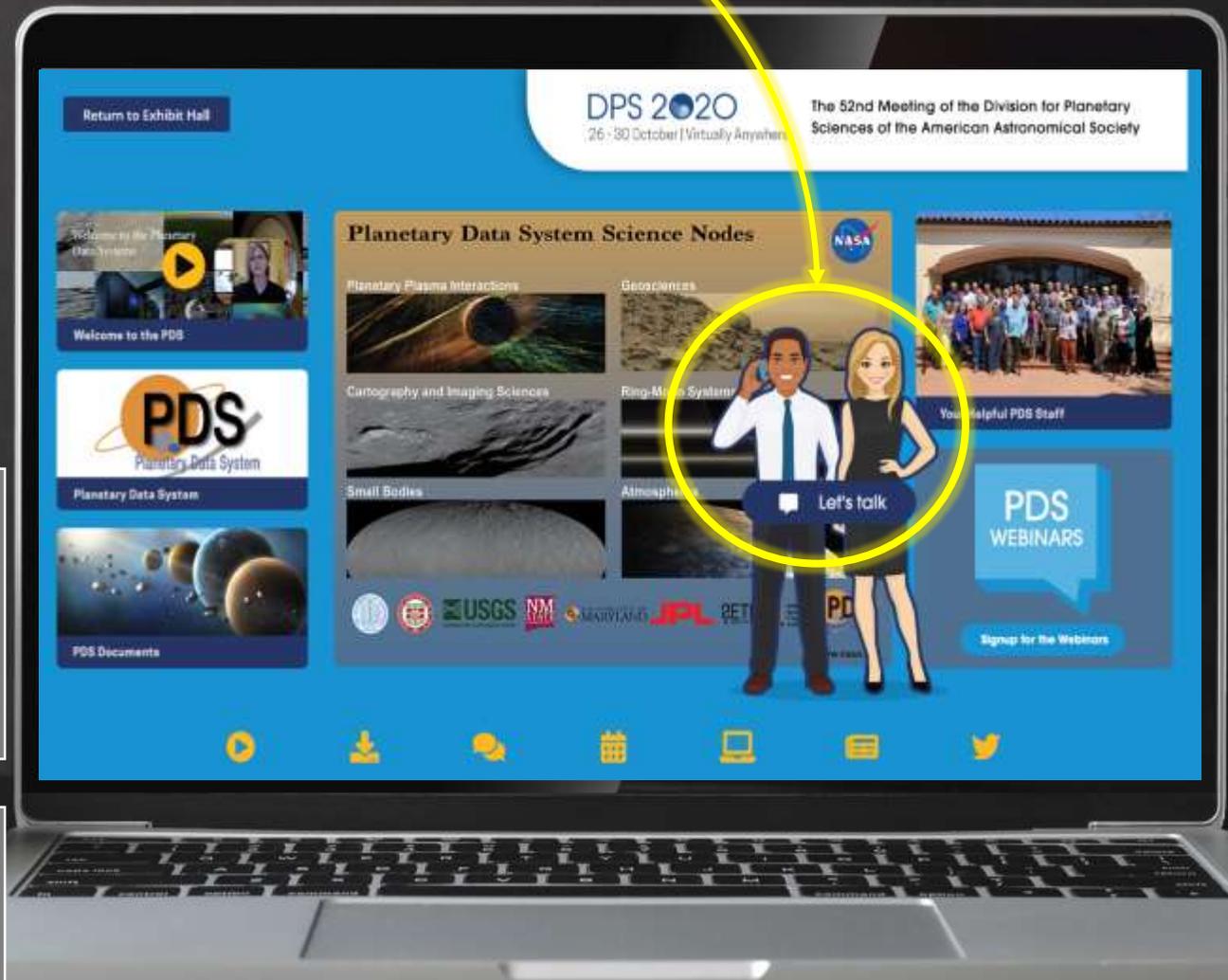
## Webinars

### 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

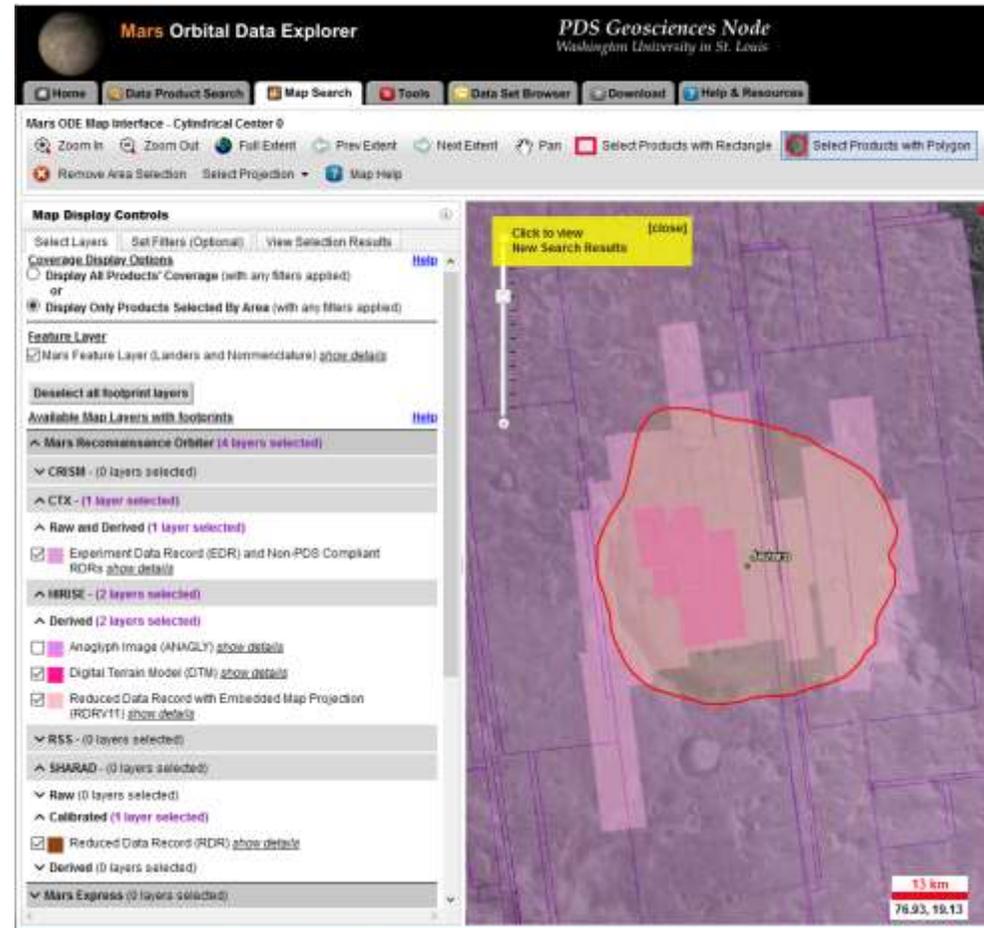
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# Orbital Data Explorer Objective

- Provide a web-based solution for cross mission, instrument, and data set searches of orbital observations of Mercury, Venus, Earth's Moon, and Mars.
- Include archives hosted by Geosciences Node and other PDS Nodes.
- Allow users to do one-stop shopping for downloads.

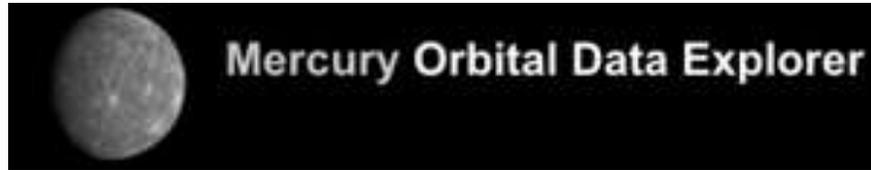
<https://ode.rsl.wustl.edu>



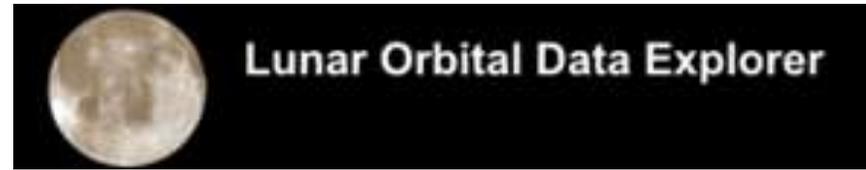
*Mars ODE map-based search showing selectable MRO data coverage layers and sample freehand polygon selection of data at Jezero Crater.*

# Orbital Data Explorers

## Supported Missions and Instruments



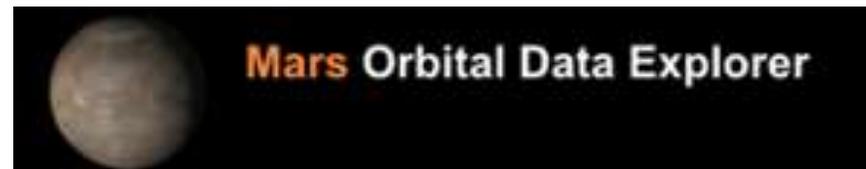
- **MESSENGER:** GRS, MASCS, MDIS-NAC, MDIS-WAC, MLA, NS, RSS, and XR



- **Lunar Reconnaissance Orbiter (LRO):** DLRE, LAMP, LEND, LOLA, LROC, MRFLRO
- **ISRO's Chandrayaan-1:** M3, Mini-RF
- **Gravity Recovery and Interior Laboratory (GRAIL):** LGRS
- **Clementine:** A-STAR, B-STAR, HIRES, LIDAR, LWIR, NIR, RSS, UVVIS
- **Lunar Prospector:** ER, GRS, MAG, NS, RSS
- **Lunar Orbiter:** 24 Inch Focal Length Camera, 80mm Focal Length Camera



- **Magellan:** Radar System, RSS
- **MESSENGER (Venus Data):** GRS, MASCS, MDIS-NAC, MDIS-WAC, MLA, NS, RSS, and XRS

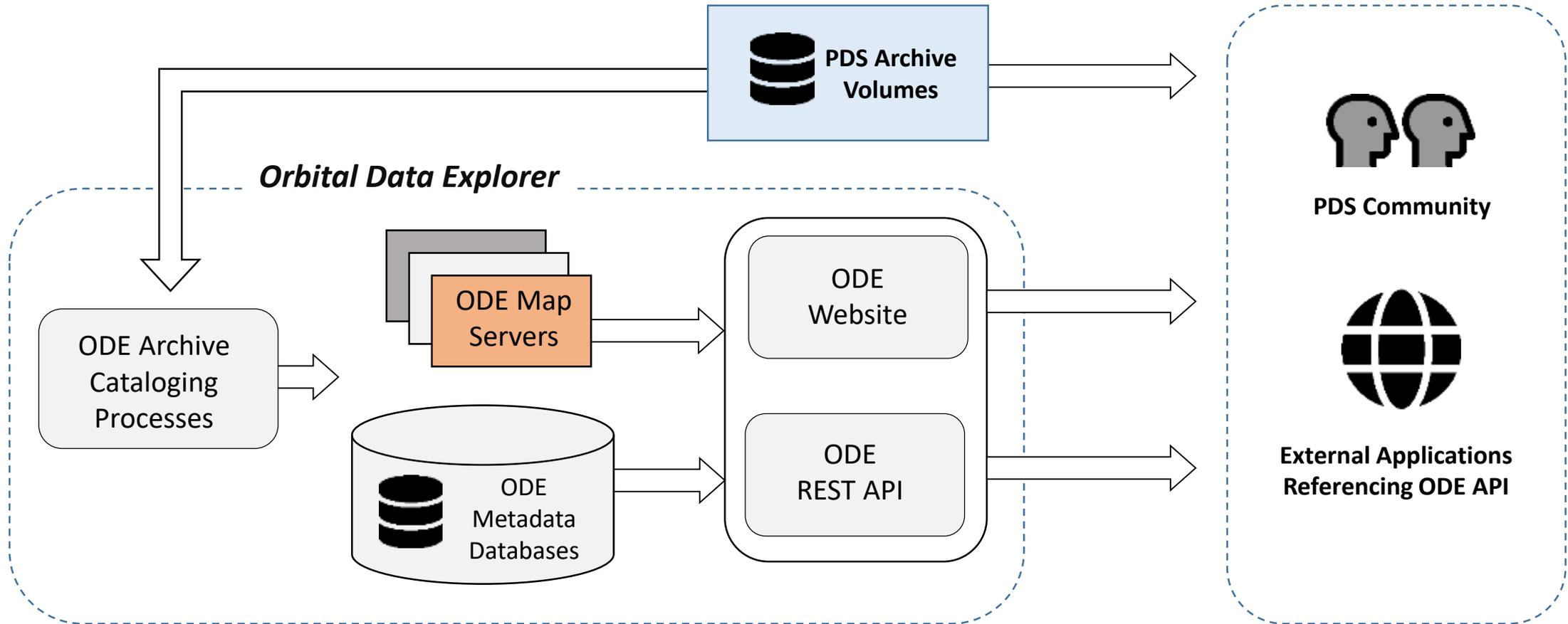


- **Mars Reconnaissance Orbiter (MRO):** CRISM, CTX, Gravity/Radio Science, HiRISE, MCS, SHARAD
- **ESA's Mars Express:** HRSC, MARSIS, OMEGA, PFS
- **2001 Mars Odyssey:** GRS, THEMIS
- **Mars Global Surveyor:** MOC, MOLA, TES
- **Viking Orbiter 1 and 2:** VISAB

# Orbital Data Explorer Features

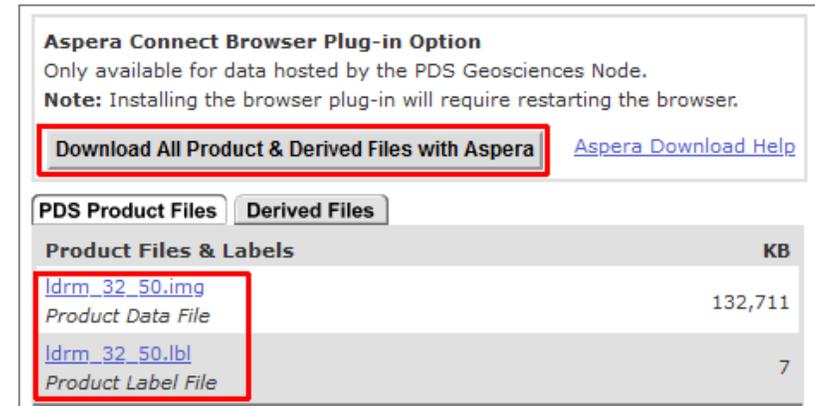
- Form-based search
  - Mission/instrument/processing level/observation type
  - PDS Product id (multiple values with wildcards are allowed)
  - Planetary location
  - Date and time filters
  - Observation angle
- Interactive map search
  - PDS product layers for map projected data sets
  - International Astronomical Union (IAU) Working Group for Planetary System Nomenclature (WGPSN) feature name layers
  - Various base maps
  - Same filters from form-based search
- Detail pages
  - Display metadata from PDS labels
  - Links to data files, ancillary files, and archive documentation
  - Related PDS product links
  - Map context for projected products
- Multiple download options
  - Individual products
  - Cart download
  - Via HTTP, FTP, and Aspera
- MRO coordinated observation search
  - CRISM, CTX, HiRISE, and MCS
- ODE GDS (granular data search)
  - MGS MOLA, LRO LOLA, LRO DIVINER, and MESSENGER MLA
  - Download csv, shape file, or binned image
- ODE REST API
  - Access to the same ODE information from code and scripts

# Orbital Data Explorer Data Flow

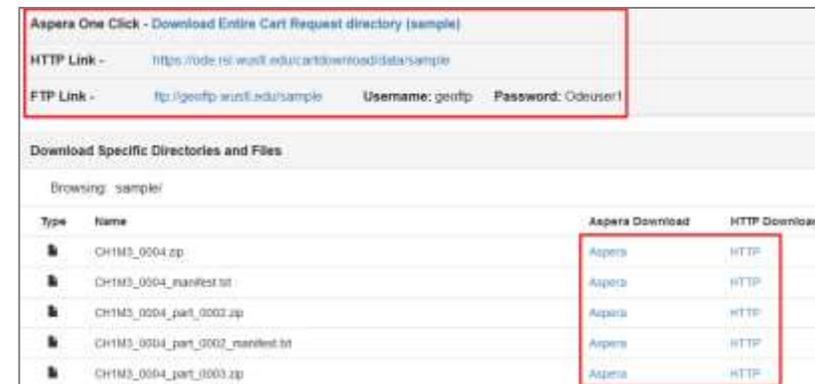


# Orbital Data Explorer File Download Options

- Direct download
  - PDS product detail page links
  - HTTP download
  - Aspera high-speed download (for files hosted by Geosciences Node)
- ODE cart
  - Add PDS products to cart from search results and detail pages
  - Download from cart request download page
    - HTTP, FTP, or Aspera
- Advanced user options
  - Download list of direct URL links



Screen shot of direct download through Aspera plugin or direct Http link



Screen shot of sample ODE cart download page with options for file download via HTTP, FTP, or Aspera

# Orbital Data Explorer Walkthroughs

- Mission/instrument search by location using ODE Mars
- Download PDS product files directly and through cart
- LOLA lunar granular search
- Mission/Instrument search by location using ODE Venus
- User questions

# Orbital Data Explorer Links and Support

## Web site Links

Orbital Data Explorer

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

ODE REST Interface

<https://oderest.rsl.wustl.edu>

## Feedback and Support

PDS Geosciences Forum

ODE announcements and Using ODE

<https://geoweb.rsl.wustl.edu/community>

Orbital Data Explorer Email

[ode@wunder.wustl.edu](mailto:ode@wunder.wustl.edu)

Let us know if you have questions or need assistance using the website.

[ode@wunder.wustl.edu](mailto:ode@wunder.wustl.edu)

Direct Contact: Dan Scholes, [scholes@wunder.wustl.edu](mailto:scholes@wunder.wustl.edu), 314-935-8688

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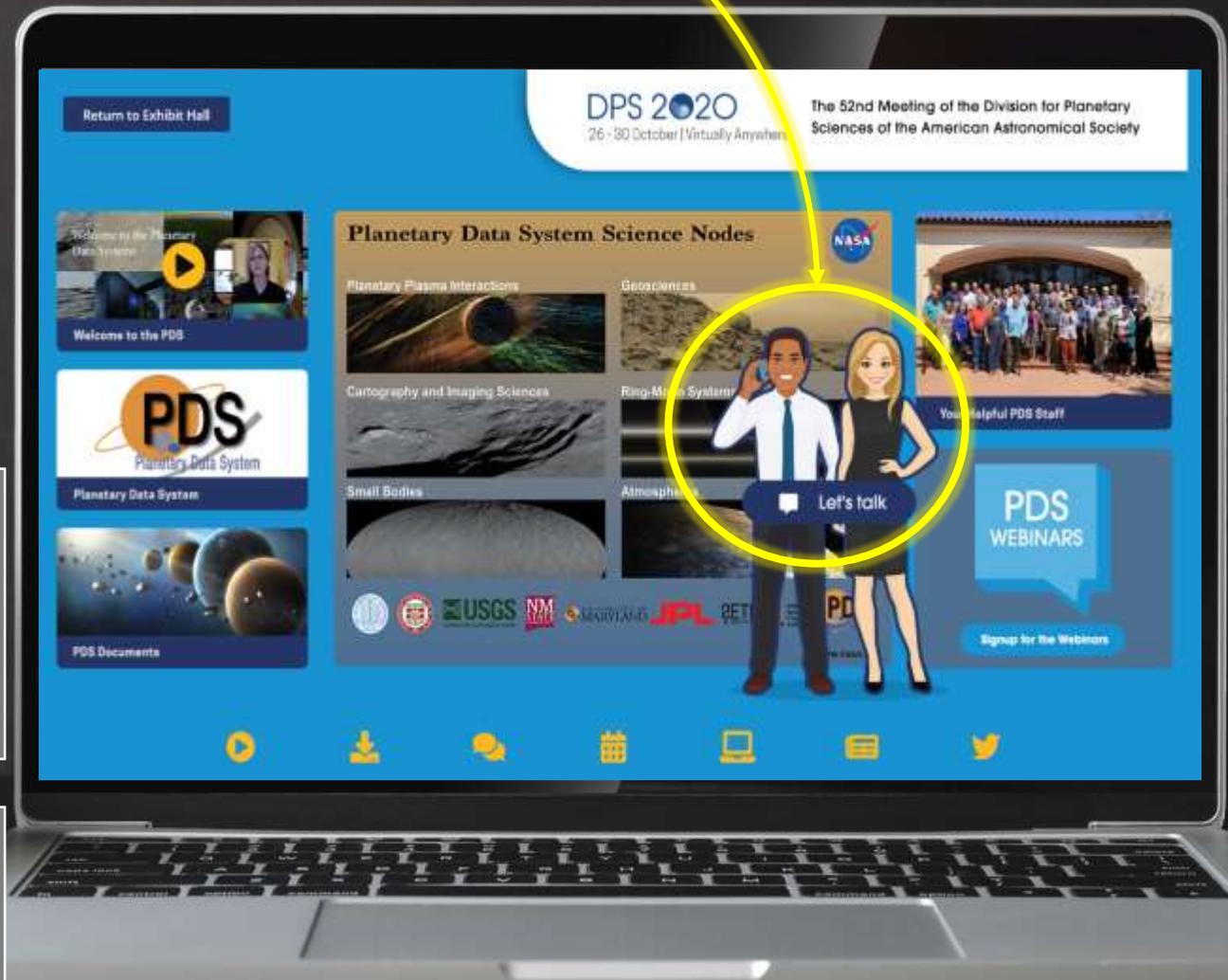
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Questions or Comments?