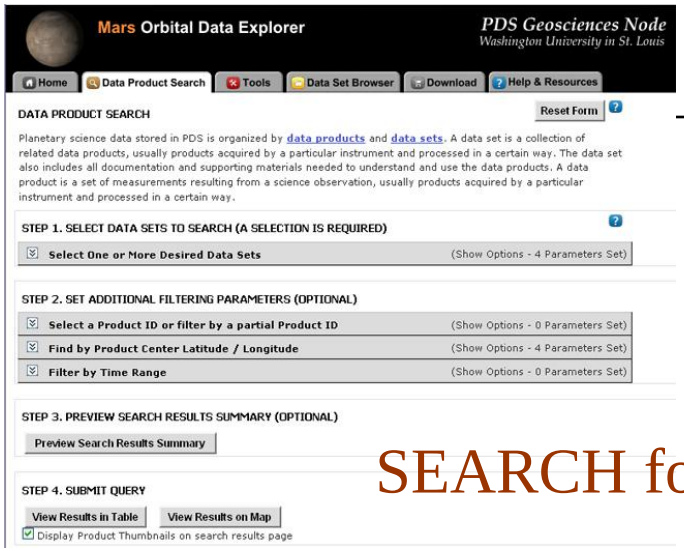
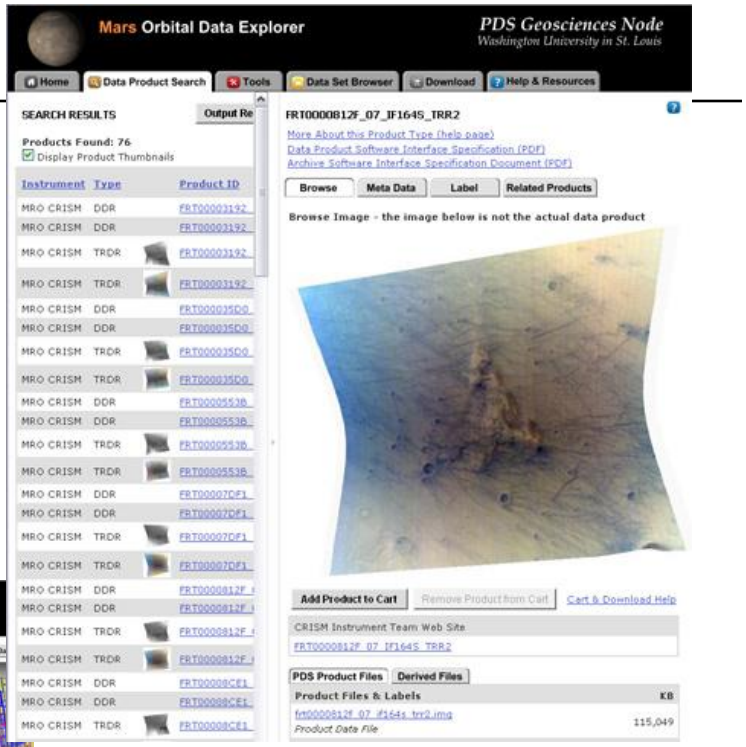
Orbital Data Explorer

Dr. Raymond Arvidson
Keith Bennett
Dan Scholes
Jue Wang
Washington University in St. Louis

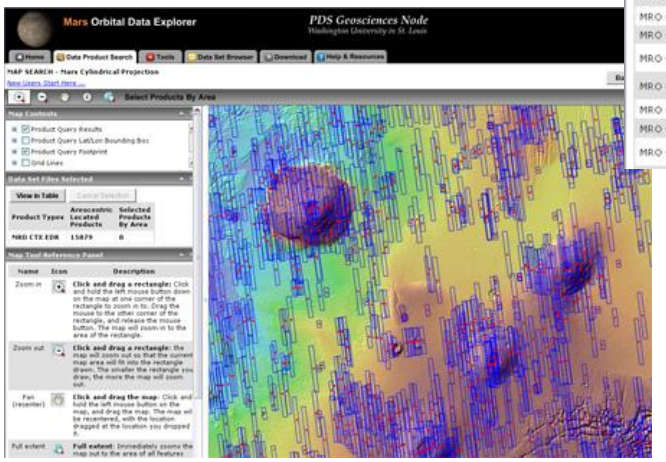
Orbital Data Explorer (ODE)



SEARCH for Products



RETRIEVE and View Products



MAP Products

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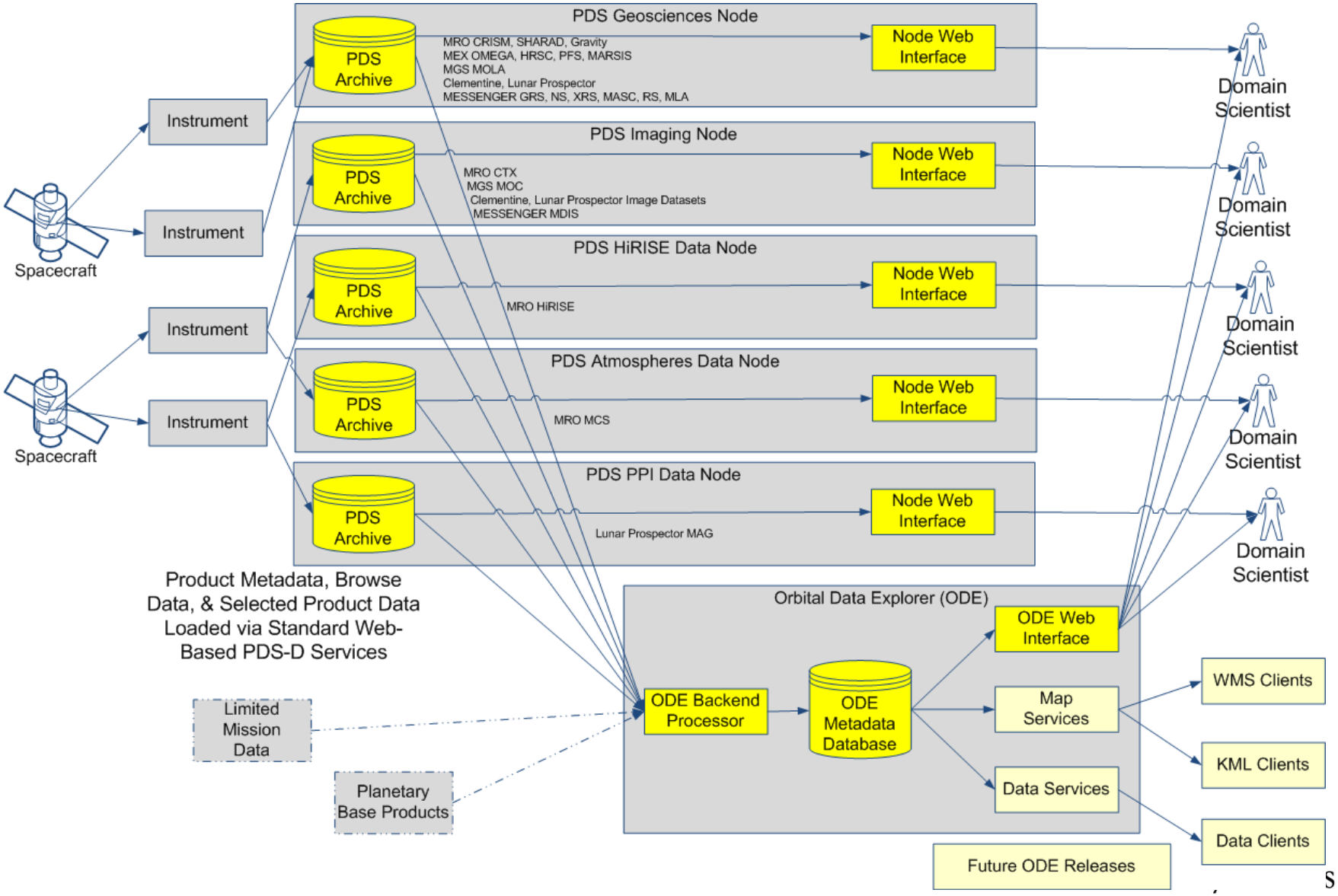
Mars Orbital Data Explorer (ODE)

- Specialized PDS web tool
- Allows users to:
  - search, retrieve, and order PDS products
  - search across missions and instruments
  - search across PDS nodes
  - search via maps and forms
- Current version supports PDS-Compliant archives from:
  - Mars Reconnaissance Orbiter (MRO)
    - CRISM, HiRISE, SHARAD, Gravity, MCS, and CTX
  - Mars Express
    - HRSC, OMEGA, PFS, MARSIS
  - Mars Global Surveyor
    - MOC, MOLA

ODE and PDS Nodes

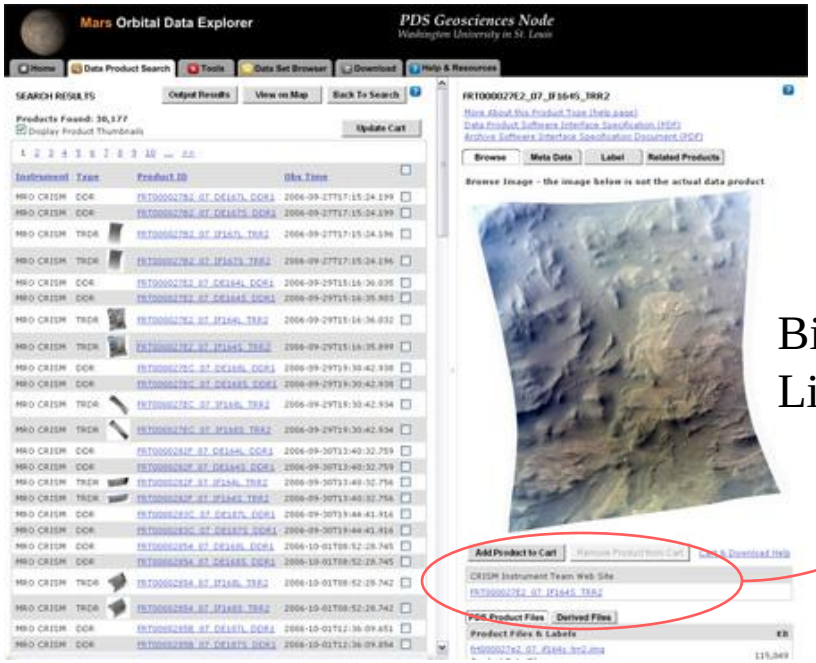


ODE Approach – Web Interface

- Dynamic forms-based **product** query including:
  - Instrument / Product Type
  - Space and Time
  - Coordinated Target Observations
  - Ad-hoc cross-instrument searches
  - Product-specific searches
- Map-based query
- Browse versions of products
- Direct access to product-specific web interfaces
  - Example: HiRISE JPIP Servers or CRISM Team Site
- Download selected products in “on-the-fly mini-archives”

How does ODE relate to CRISM Web Site?

ODE



- Search across missions
  - Example: across CRISM, HiRISE, CTX

Bi-Directional Links

CRISM Web Site

- Focus on CRISM

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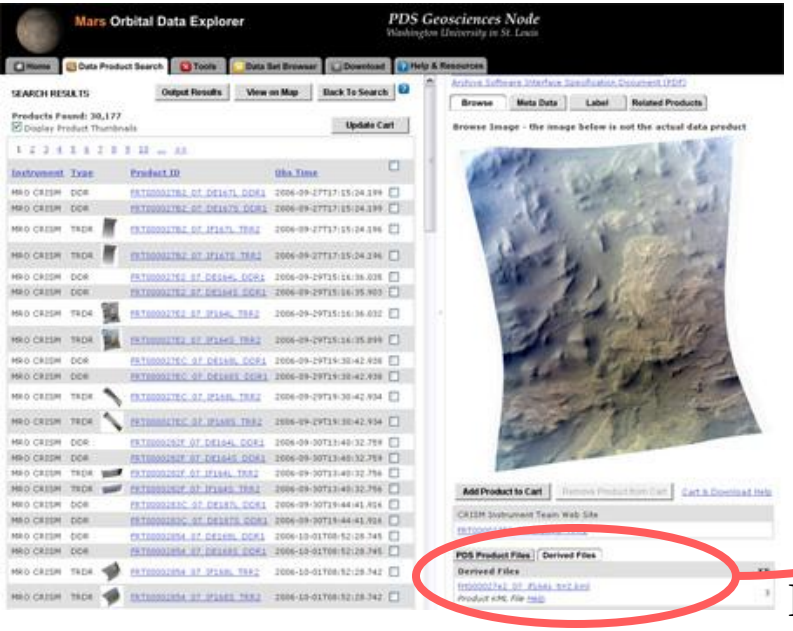
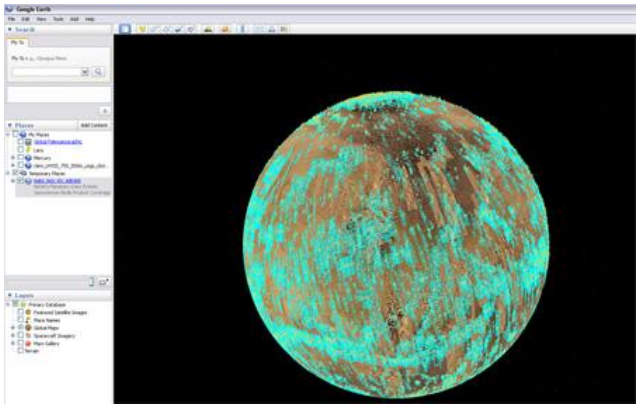
How does ODE relate to Google Earth (Mars)?



Footprints Link back to ODE Product Results Page

Individual Product KML Link from ODE Product Results

Product Type Coverage KML File Generated by ODE to Google Mars



Meridiani Opportunity Site

- Use ODE to acquire science data products
- Meridiani Location:
  - Latitude Range: 4S to 1.5S
  - Longitude Range: 6.5W to 4.5W
    - (353.5E to 355.5E)

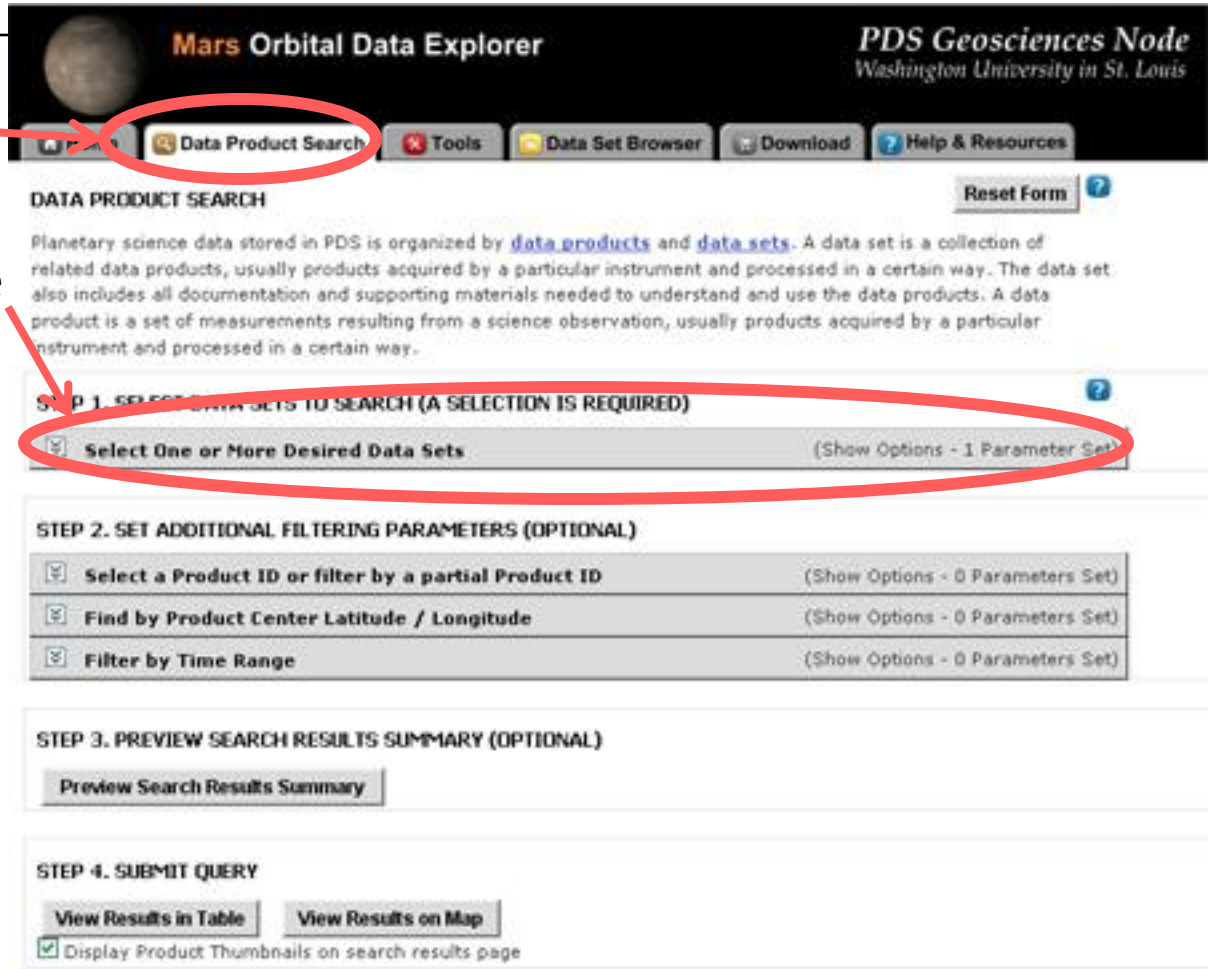
Meridiani and ODE - 1

Open ODE Mars: http://ode.rsl.wustl.edu/mars/

Meridiani and ODE – 2

1) Select Data Product Search Tab

2) Open the Select One or More Desired Data Sets



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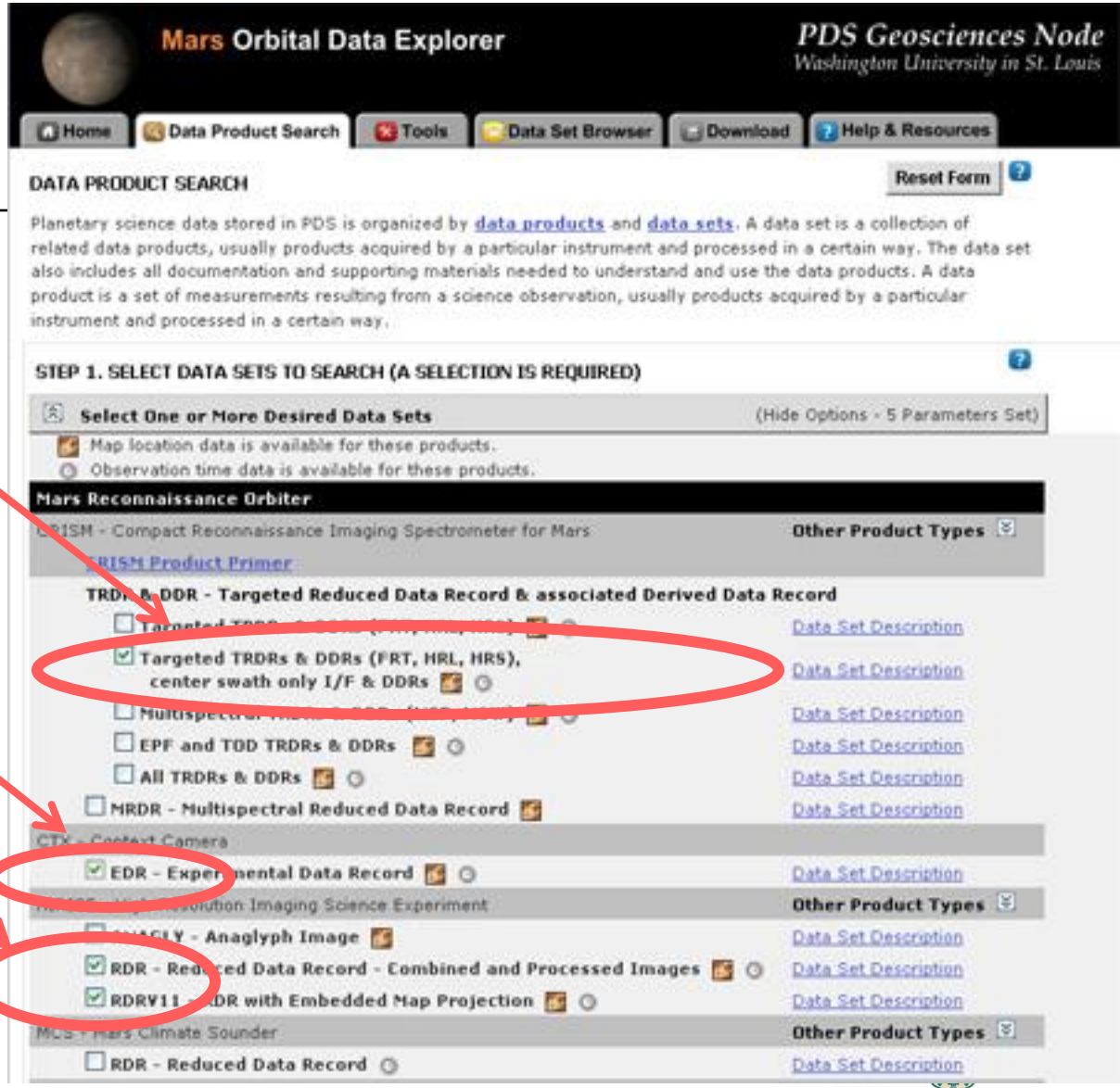
Meridiani ODE – 3

1) Select CRISM Targeted TRDRS & DDRs (FRT, HRL, HRS), center swath only I/Fs & DDRs

2) Select CTX

3) Select HiRISE RDR and RDRV11

(HiRISE Version 1.1 RDRs include map projection information embedded in the JPEG 2000 files)



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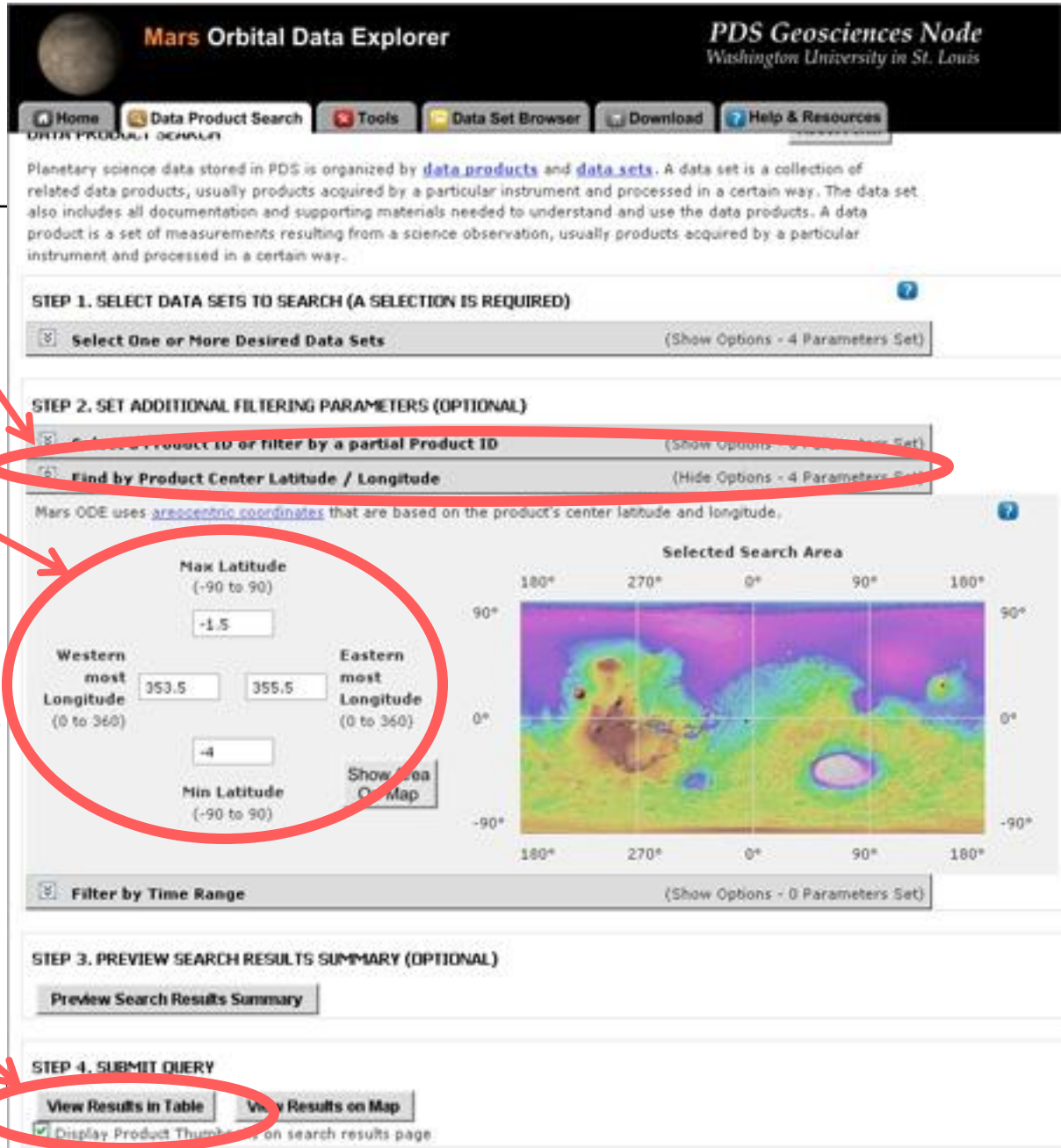
Meridiani ODE – 4

1) Scroll down and expand "Find by Product Center Latitude/Longitude"

2) Enter a location range:
- Enter -1.5 for Max Latitude
- Enter 353.5 for West Longitude
- Enter 355.5 for East Longitude
- Enter -4 for Min Latitude

NOTE: Currently ODE searches on centers so you need to provide a large enough search area to catch the products you want (future versions of ODE will support search on coverage).

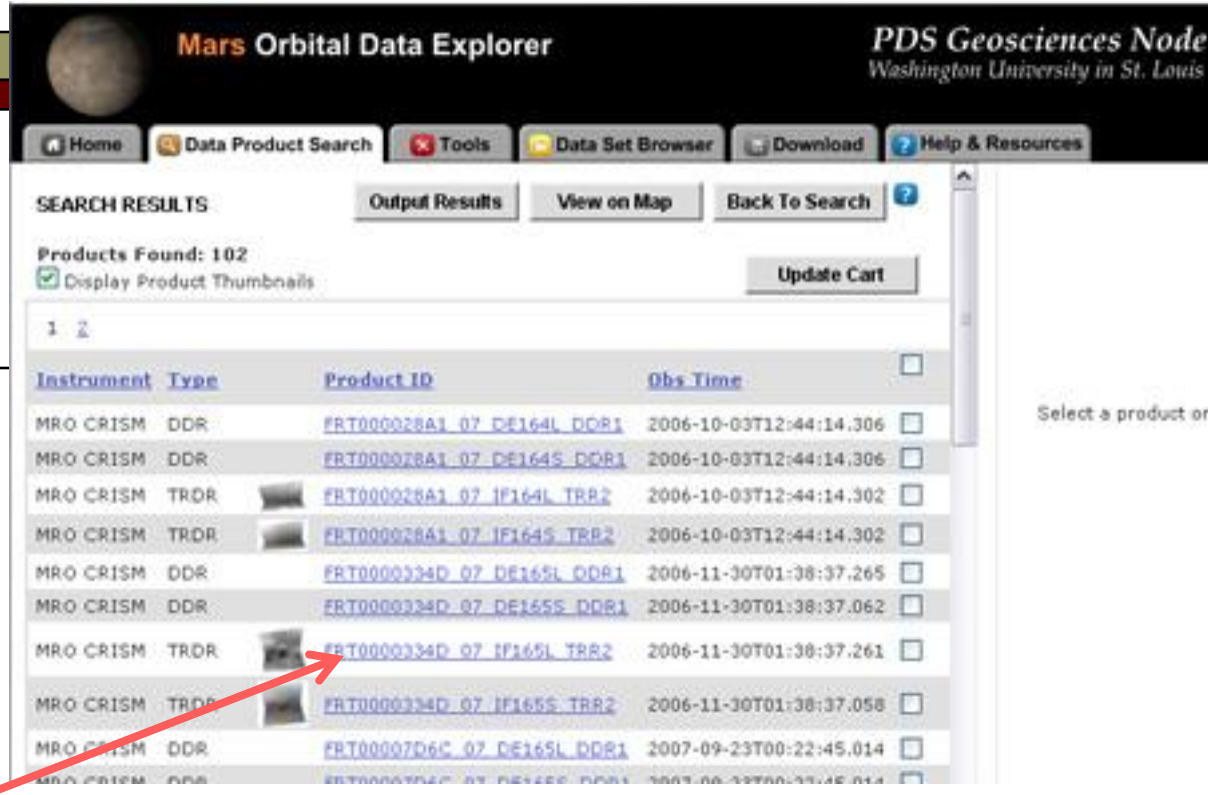
3) Select "View Results in Table"



Meridiani ODE – 5

1) List of products found
- 102 Products found
- 21 TRDRs
- 22 DDRs
- 16 CTX EDRs
- 43 HiRISE RDR/RDRV11

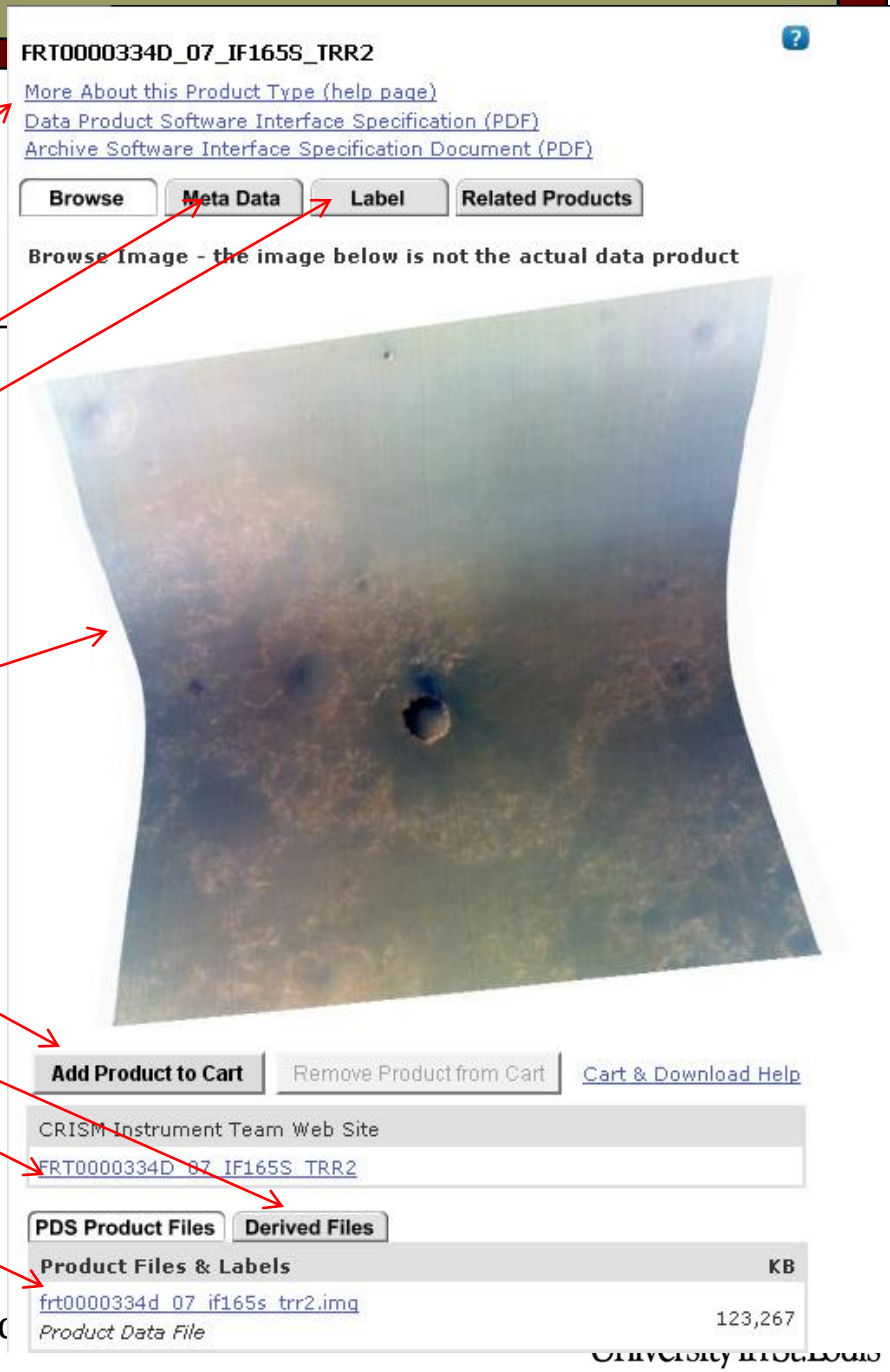
2) (Optional): Explore products by selecting their product id



Meridiani ODE – 6

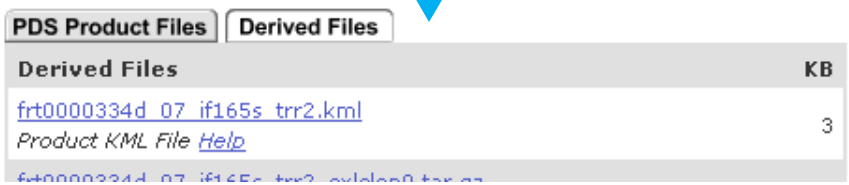
1) OPTIONAL – Take a look at a product:

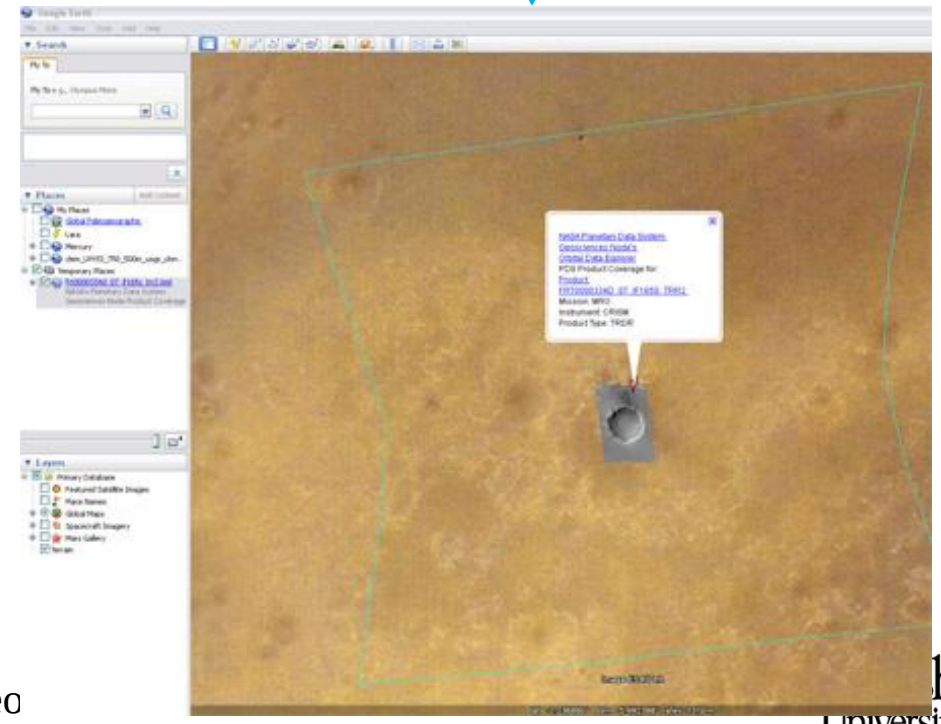
2) Features
   1) SISs
   2) Meta Data
   3) Label
   4) Browse Image
   5) Add to download Cart
   6) Derived Files
   7) Access to CRISM Web Site
   8) Product Files



Meridiani ODE – 7

1) OPTIONAL – Derived files to Google Mars
2) Select the Derived Files Tab
3) Open Google Earth, Switch to Mars
4) Select the KML file

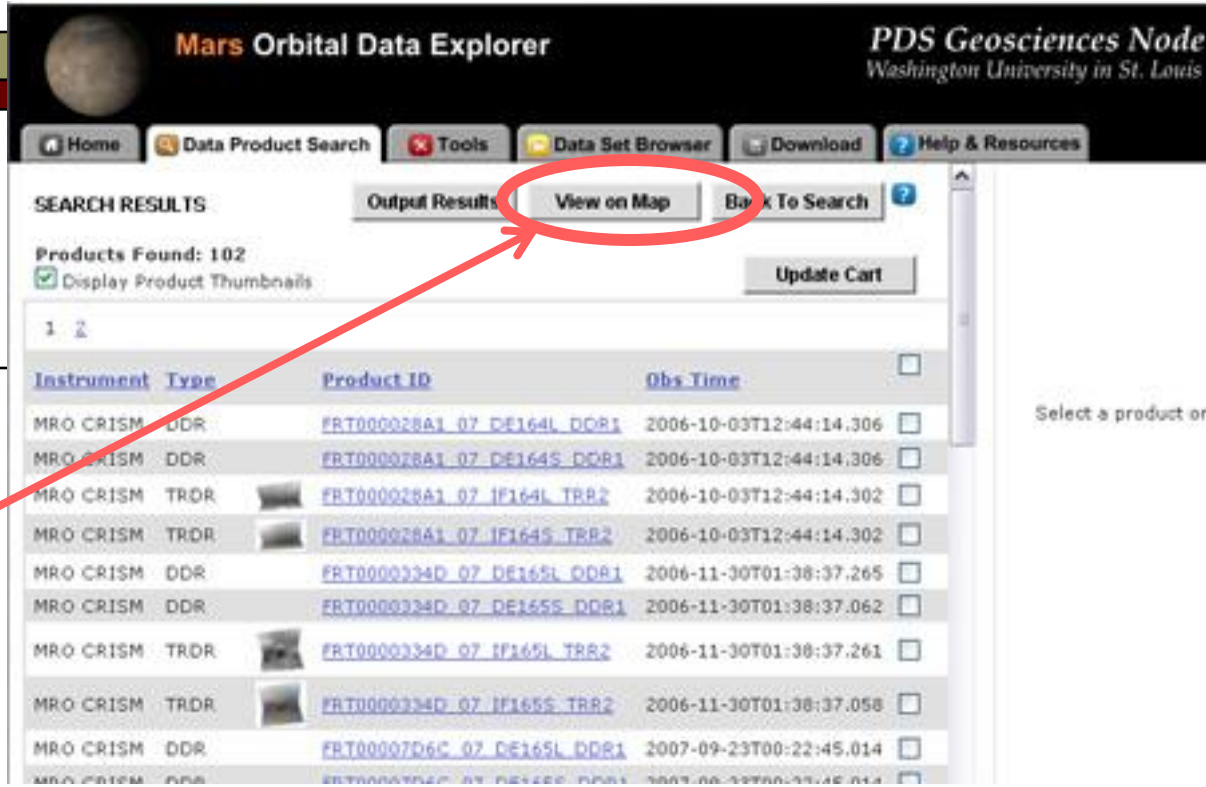




Meridiani ODE – 8

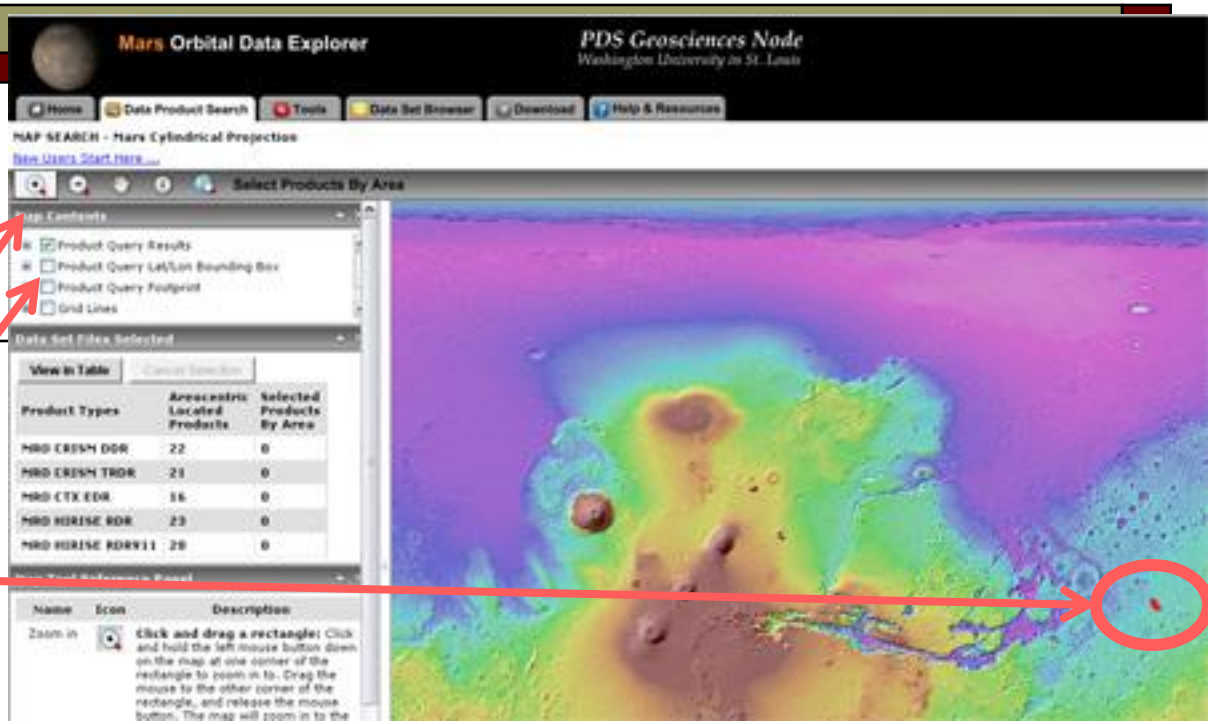
1) Let's refine the search

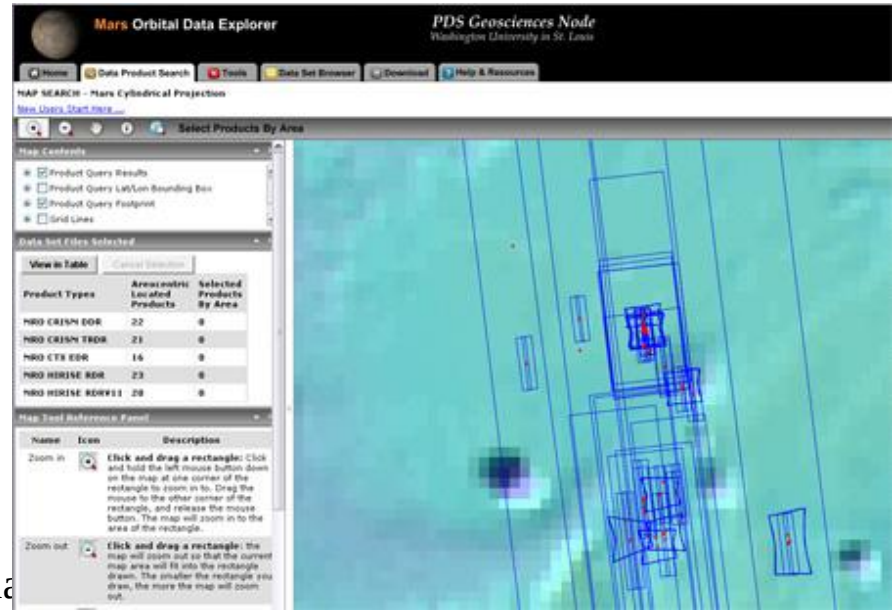
2) Select "View on Map"



Meridiani ODE – 9

1) Let's focus:
    1) Turn on Footprints
    2) Select zoom
    3) Click/Drag around area





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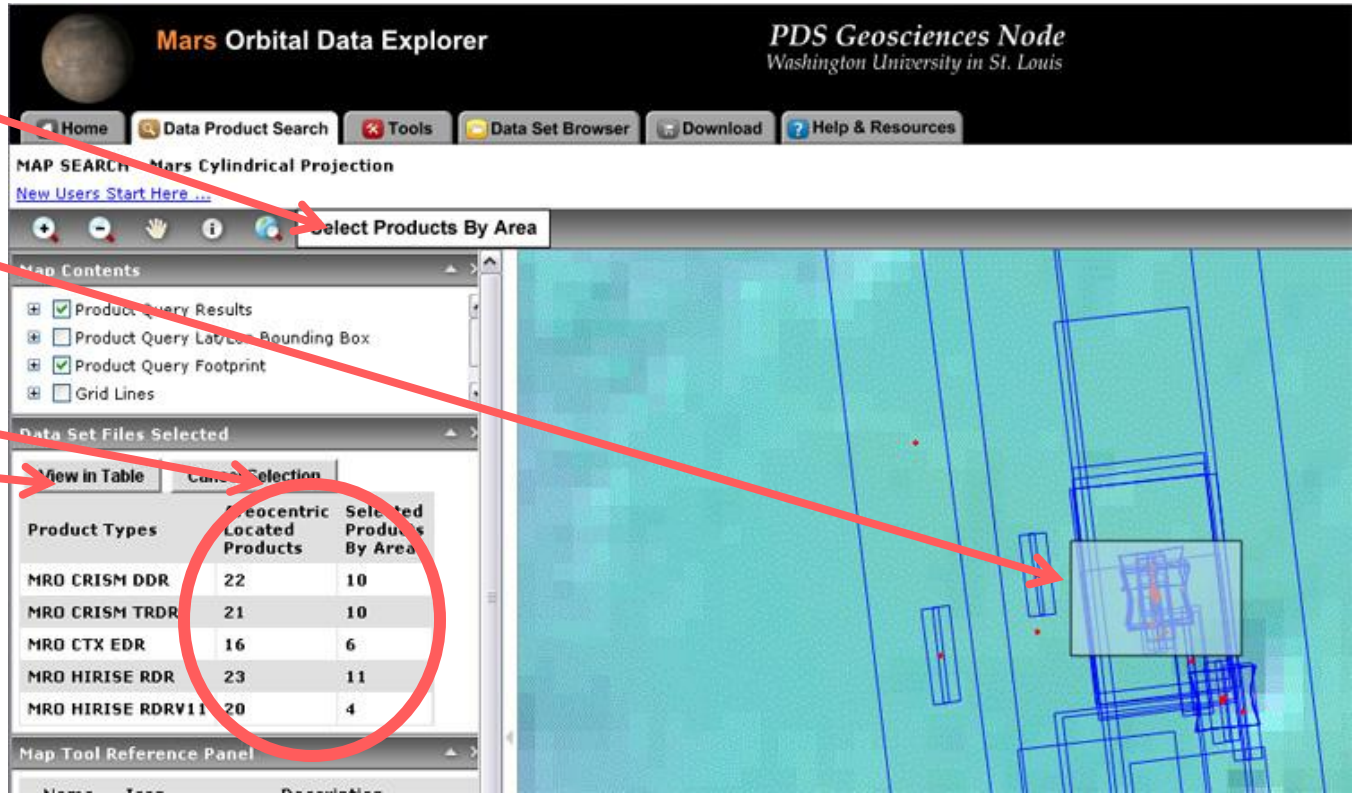
Meridiani ODE – 10

1) Select "Select Products By Area"
2) Click/Drag around landing site
3) Notice the list of selected products is reduced
4) Select "View in Table"



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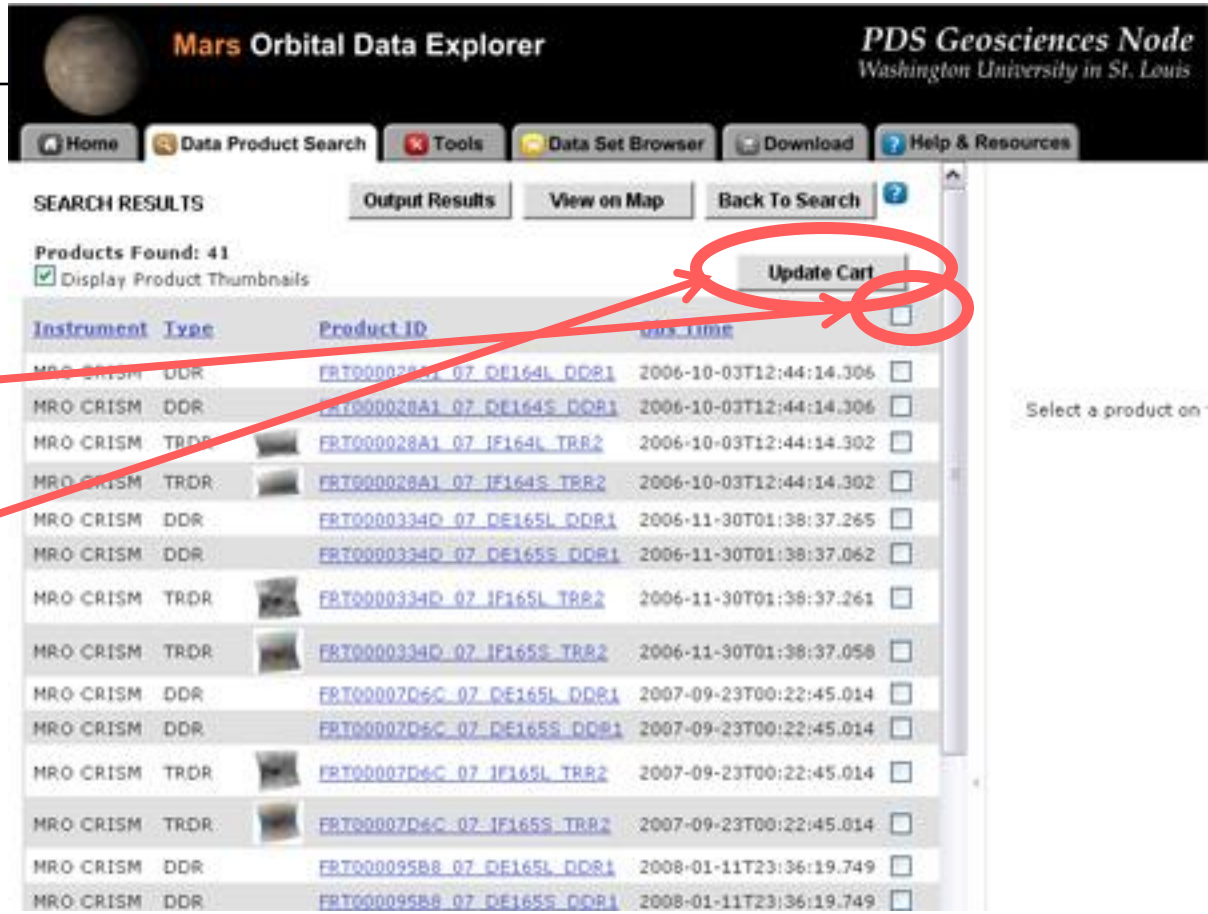
Meridiani ODE – 11

1) Let's download these products

We want to add all to cart:

2) Select update cart box
(This will select all products on page)

3) Select Update Cart button



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Meridiani ODE – 12

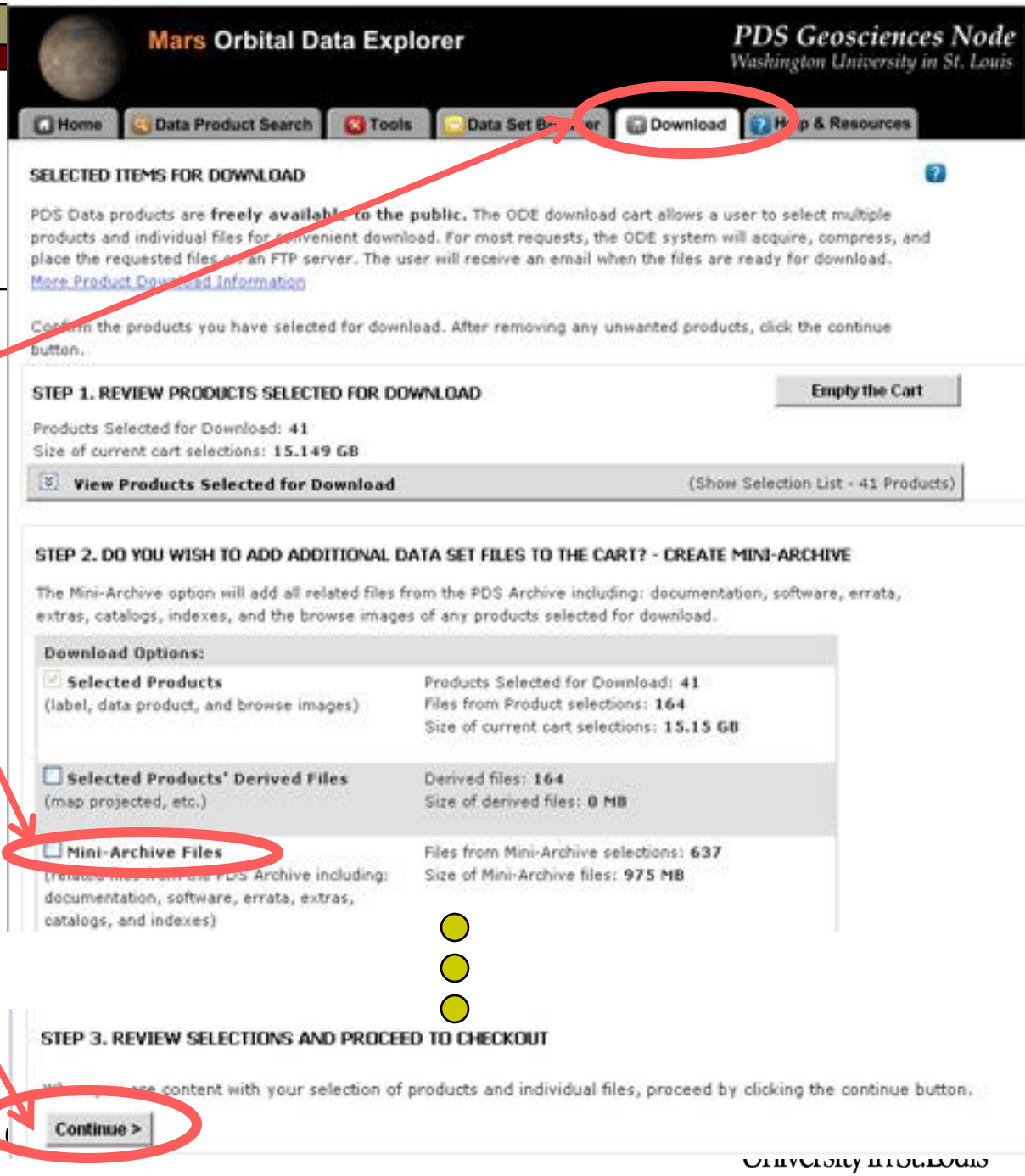
Download all products in cart:

1) Select “Download” tab

2) Select “Create Mini-Archive”

This will include all archive documentation, catalog files, extras found in the product’s PDS Archive

3) Select “Continue”



Meridiani ODE – 13

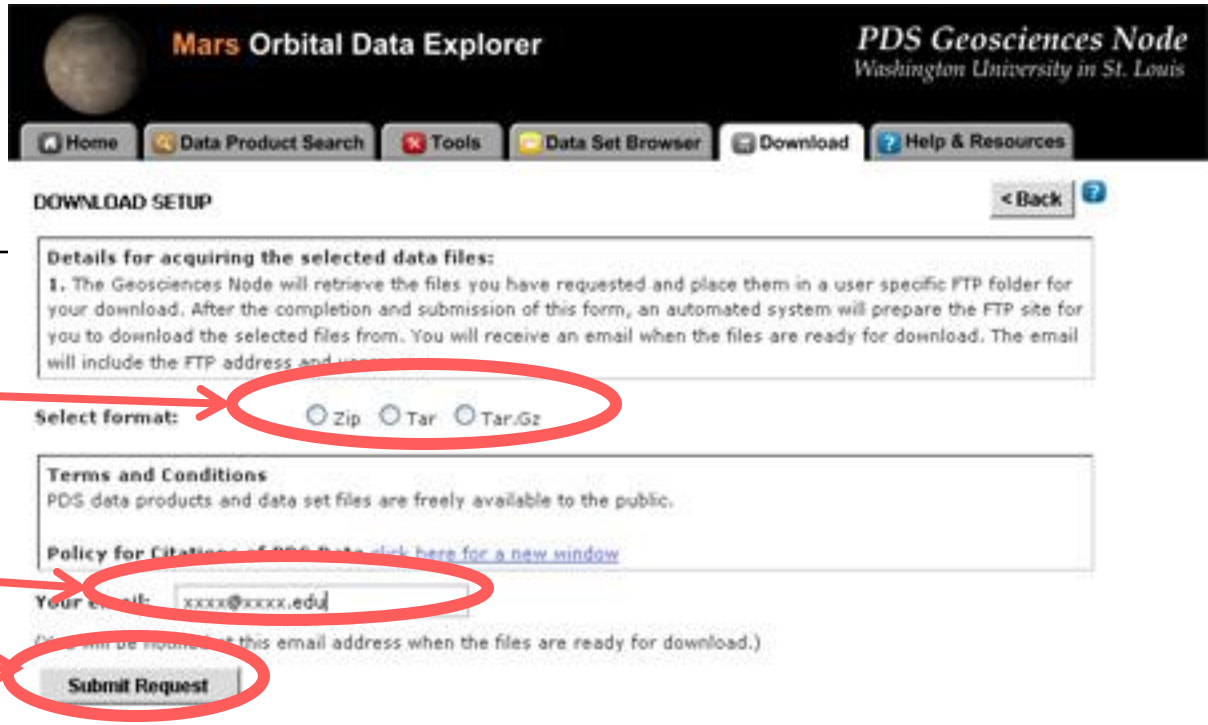
Finalize Download

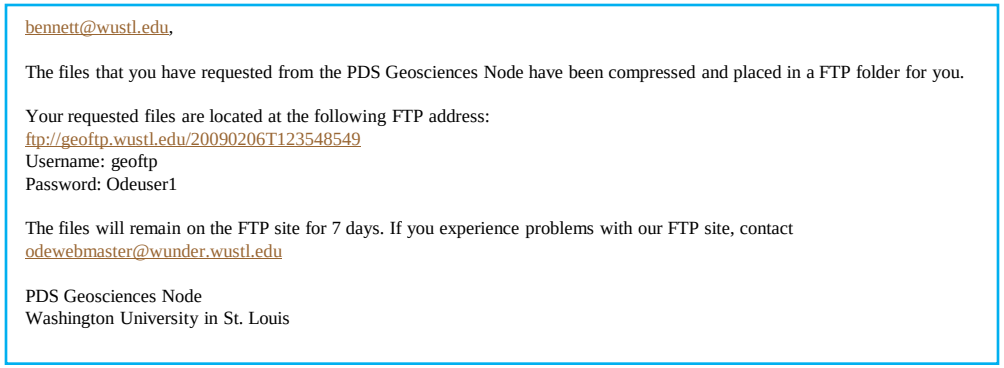
1) Select Format: Zip, Tar, or Tar.Gs

2) Enter Email Address

3) Select "Submit Request"

ODE will gather the appropriate files, package and compress, then send you email with instructions on how to download compressed packages





bennett@wustl.edu,

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

Your requested files are located at the following FTP address:
ftp://geoftp.wustl.edu/20090206T123548549
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

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Contacts

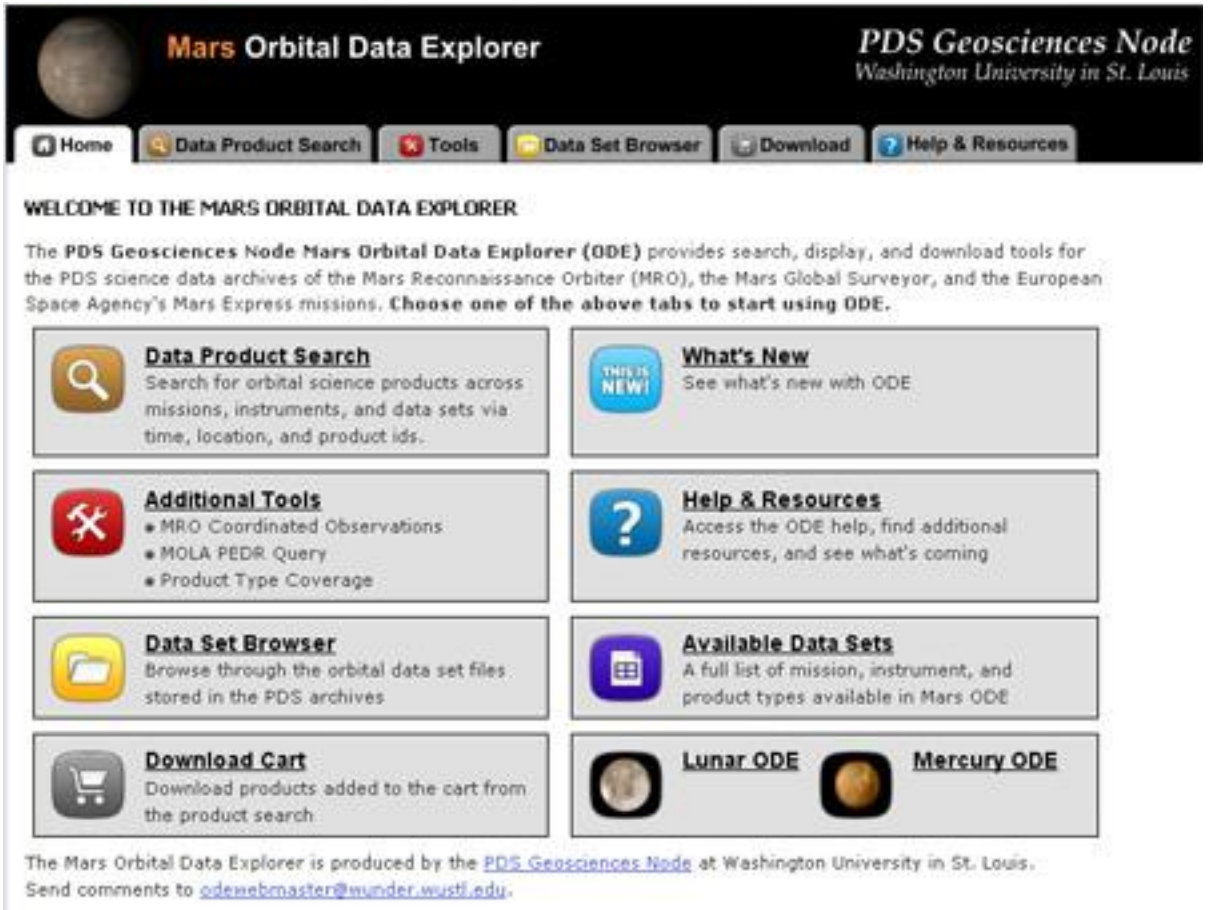
- Keith Bennett – ODE Lead
  - bennett@wustl.edu
- Dan Scholes – ODE Web Master
  - odewebmaster@wunder.wustl.edu

Backup Slides

Additional Scenarios

Nili Fossae and ODE - 1

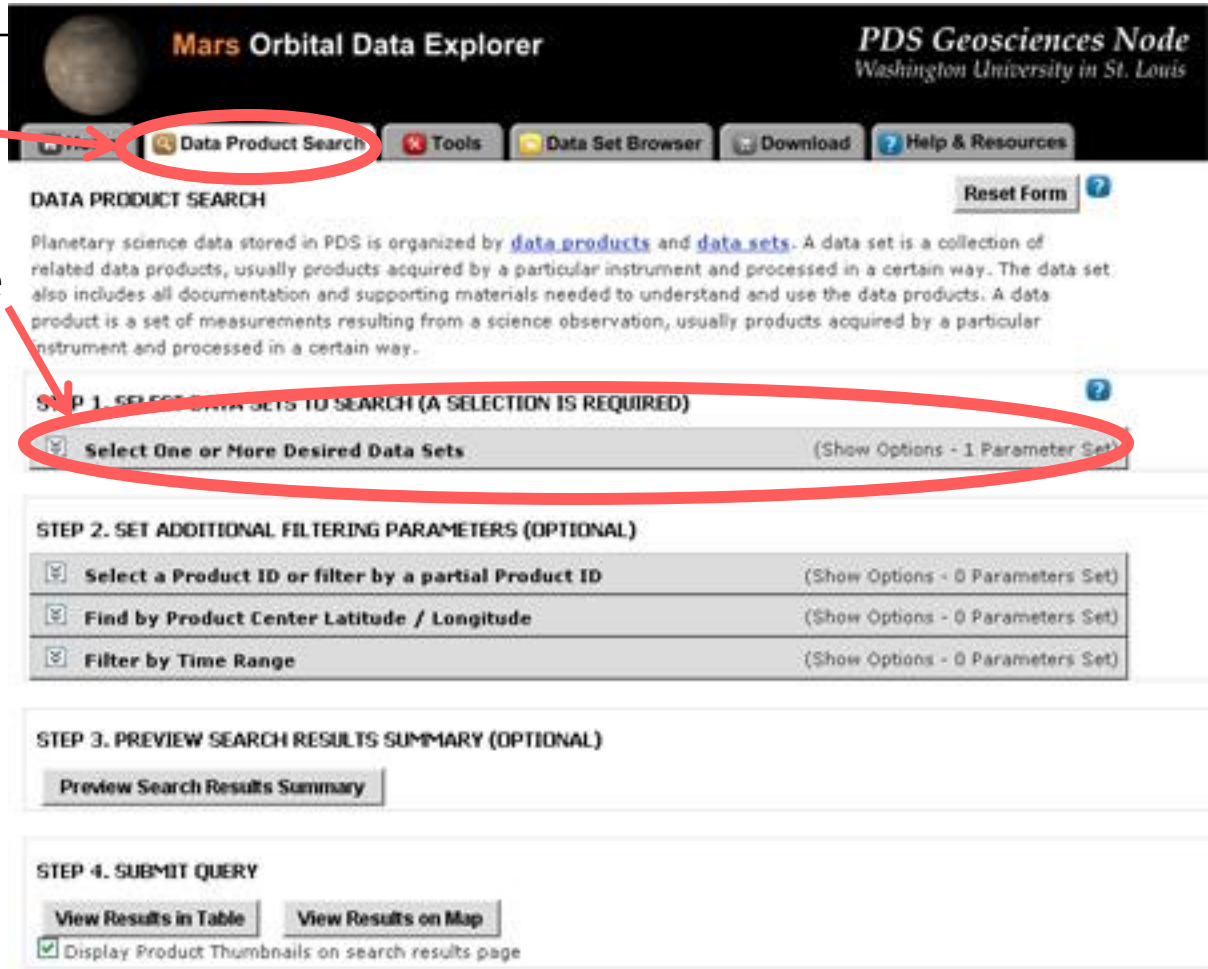
Open ODE Mars:
http://ode.rsl.wustl.edu/mars/



Nili Fossae and ODE – 2

1) Select Data Product Search Tab

2) Open the Select One or More Desired Data Sets



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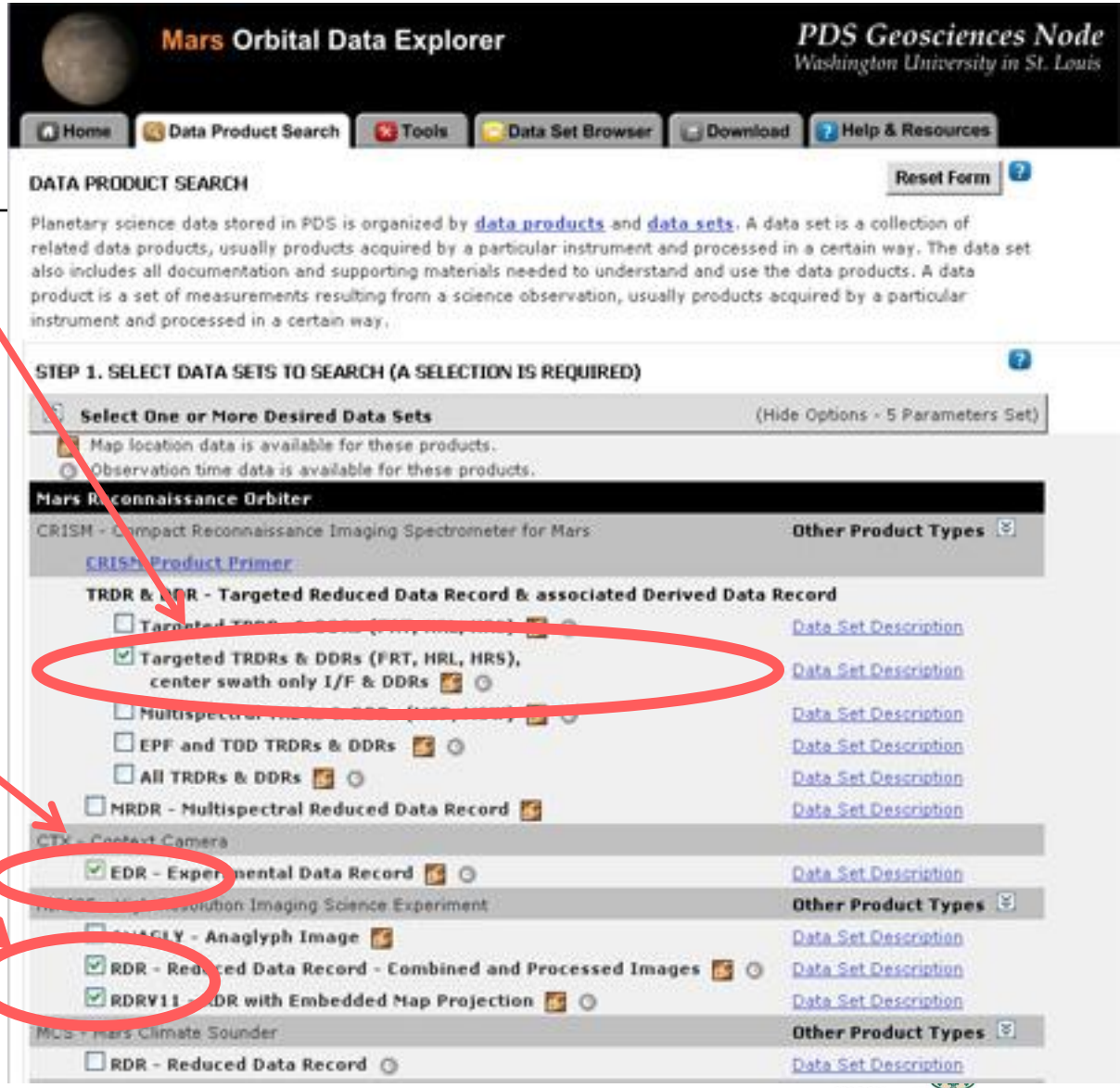
Nili Fossae ODE – 3

1) Select CRISM Targeted TRDRS & DDRs (FRT, HRL, HRS), center swath only I/Fs & DDRs

2) Select CTX

3) Select HiRISE RDR and RDRV11

(HiRISE Version 1.1 RDRs include map projection information embedded in the JPEG 2000 files)



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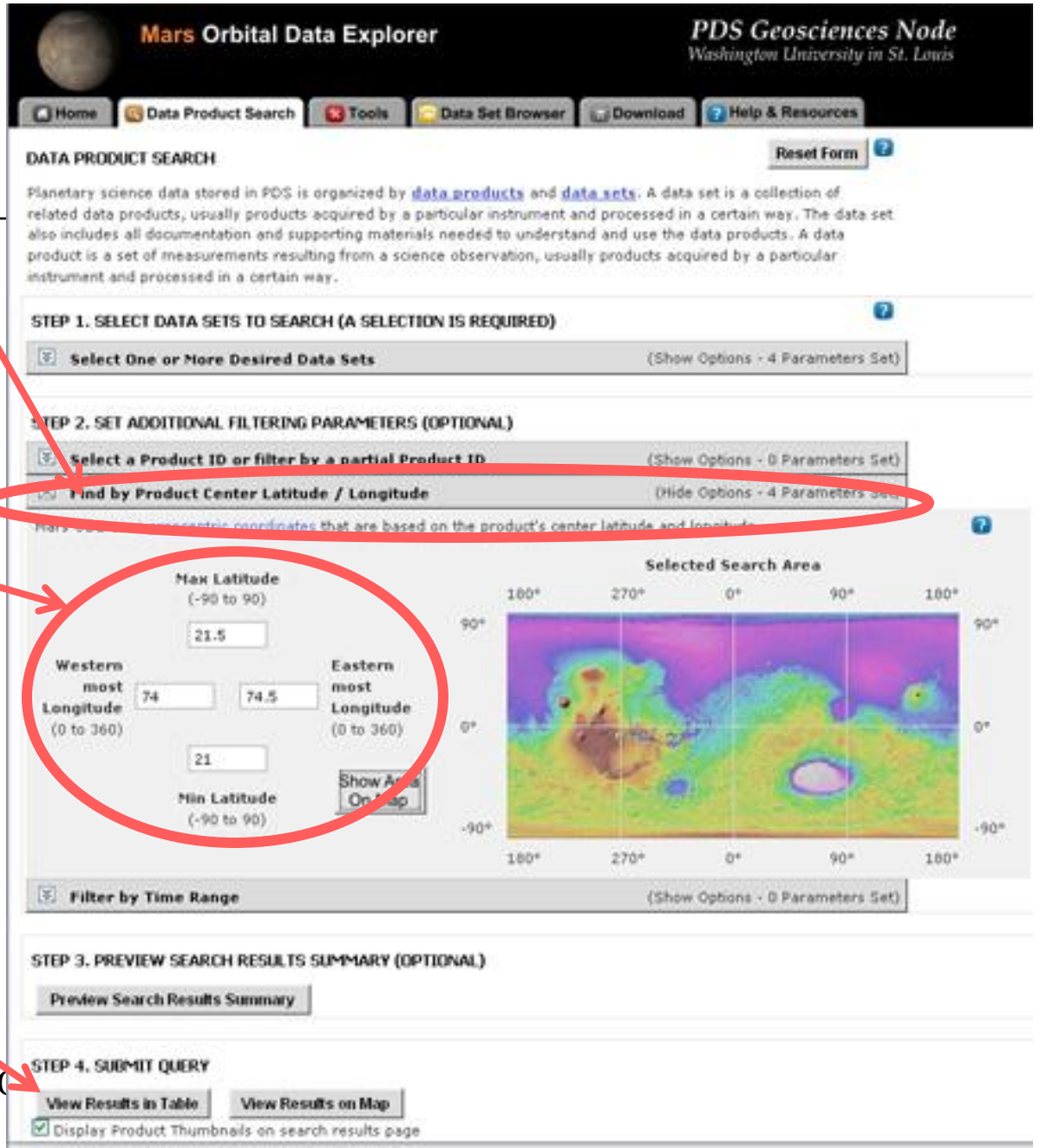
Nili Fossae ODE – 4

1) Scroll down and expand "Find by Product Center Latitude/Longitude"
2) Nili Fossae is at approximately 21.1N, 75.4E
Enter a box around this spot:
- Enter 21.5 for Max Latitude
- Enter 74 for West Longitude
- Enter 74.5 for East Longitude
- Enter 21 for Min Latitude

NOTE: Currently ODE searches on centers so you need to provide a large enough search area to catch the products you want (future versions of ODE will support search on coverage).

2) Select "View Results inTable"



Nili Fossae ODE – 5

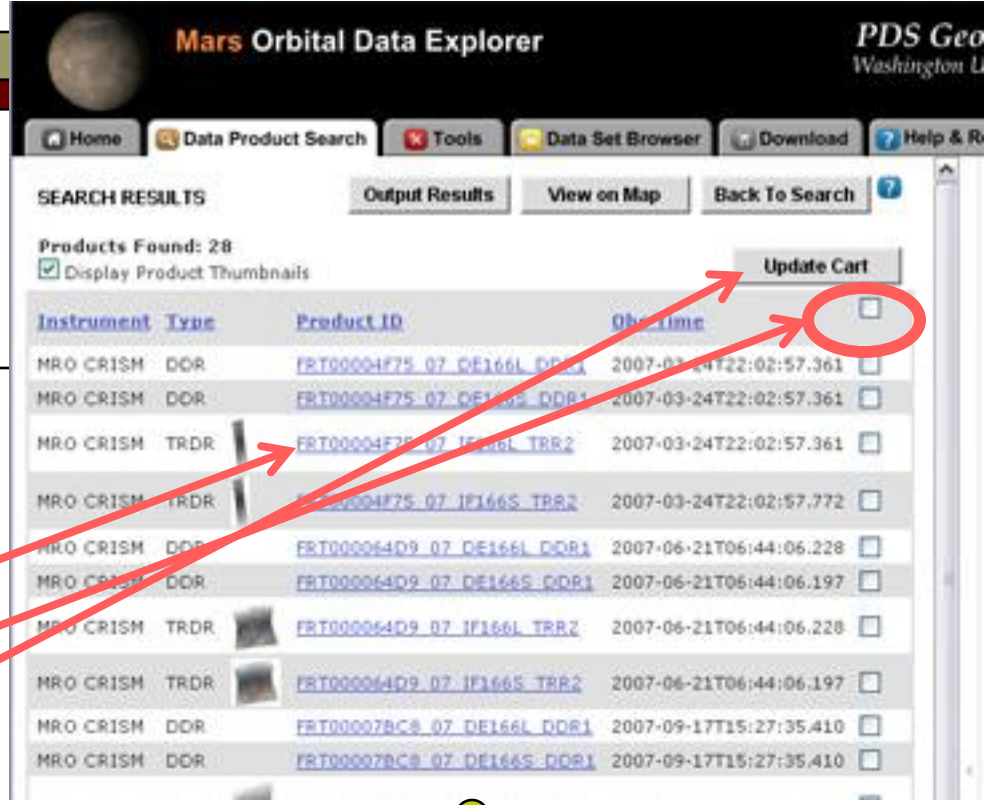
1) List of products found
- 28 Products:
- 10 TRDRs
- 10 DDRs
- 2 CTX EDRs
- 6 HiRISE RDR/RDRV11s

2) (Optional): Explore products by selecting their product id

We want to add most to cart:
3) Select update cart box
(This will select all products on page)
4) Select Update Cart button
- This will place all products in cart:

5) This is a lot of data. We really don't want all the HiRISE (one will do) so deselect the box next to the others.

6) Select Update Cart button
- this will remove them from the cart



Nili Fossae ODE – 6

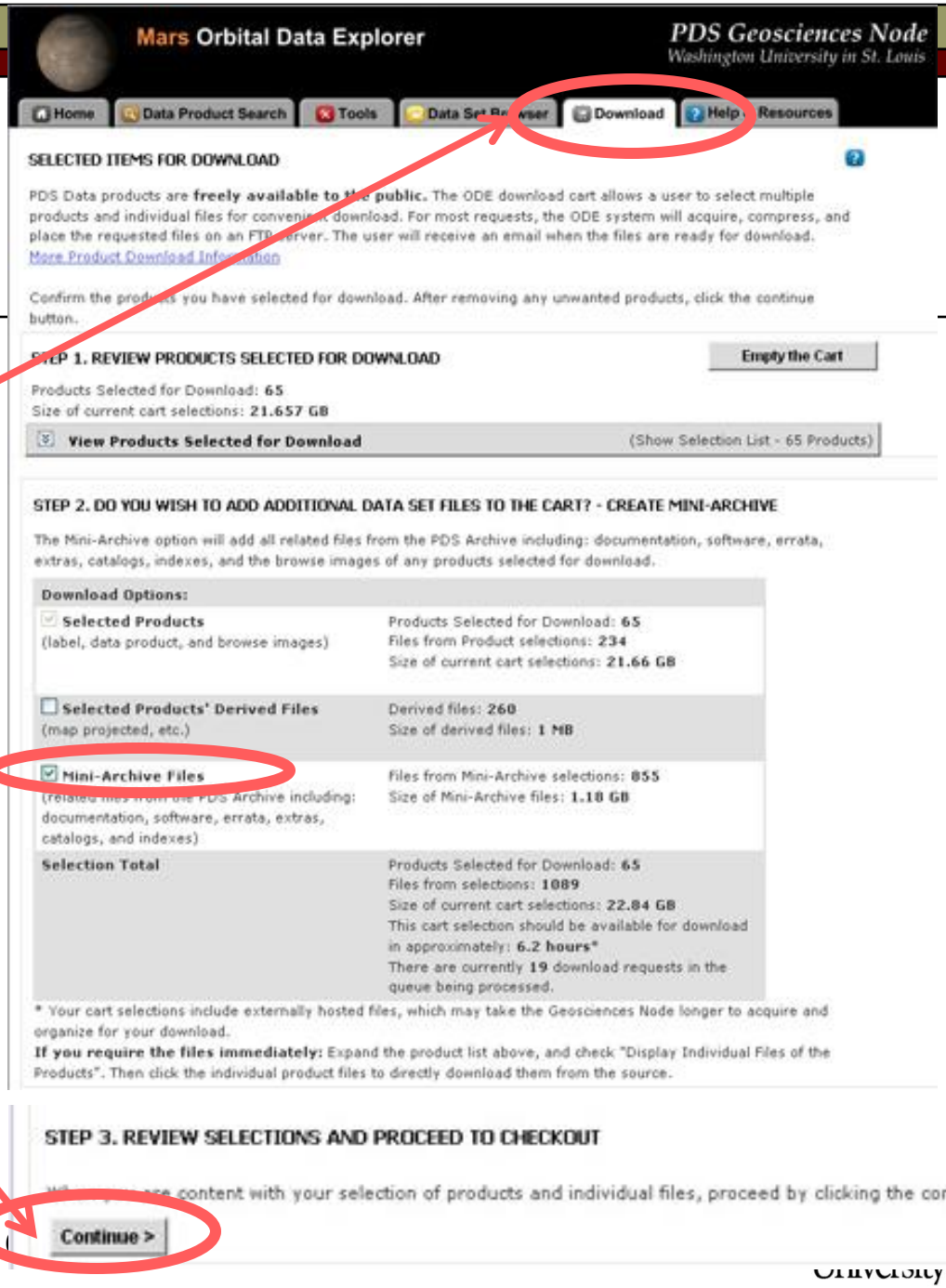
Download all products in cart:

1) Select “Download” tab

2) Select “Create Mini-Archive”

This will include all archive documentation, catalog files, extras found in the product’s PDS Archive

3) Select “Continue”



Nili Fossae ODE – 7

Finalize Download

1) Select Format: Zip, Tar, or Tar.Gs

2) Enter Email Address

3) Select "Submit Request"

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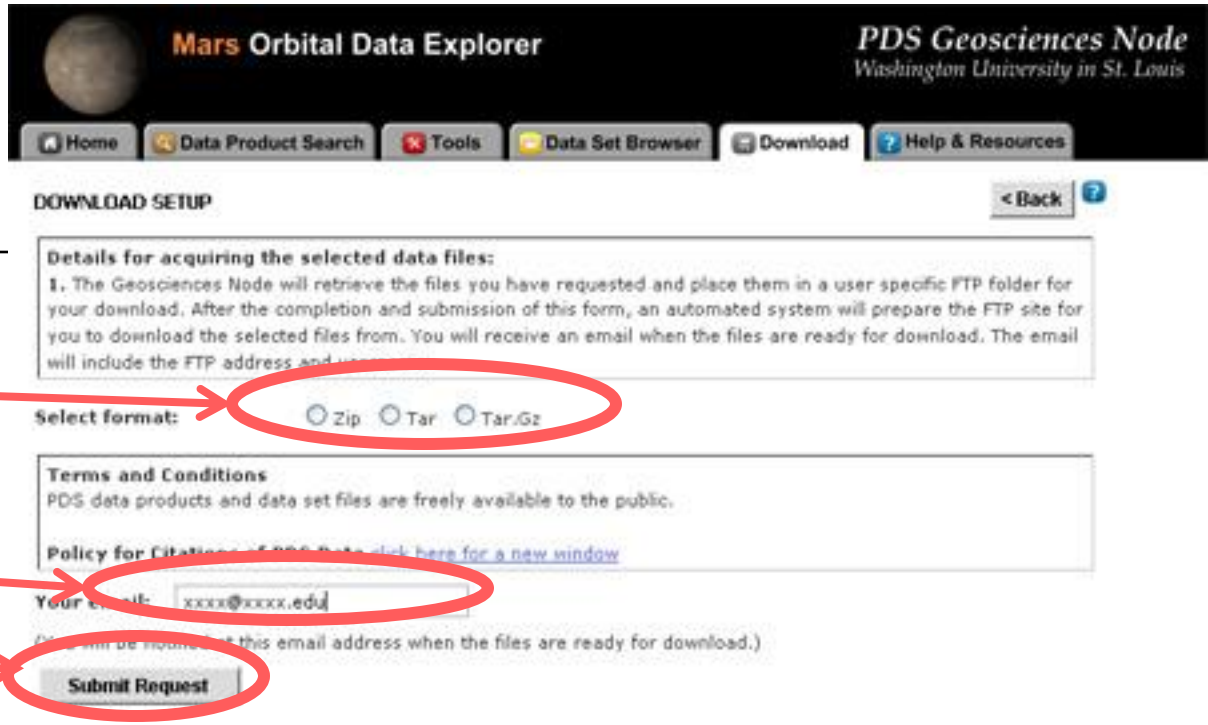

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Washington University in St. Louis

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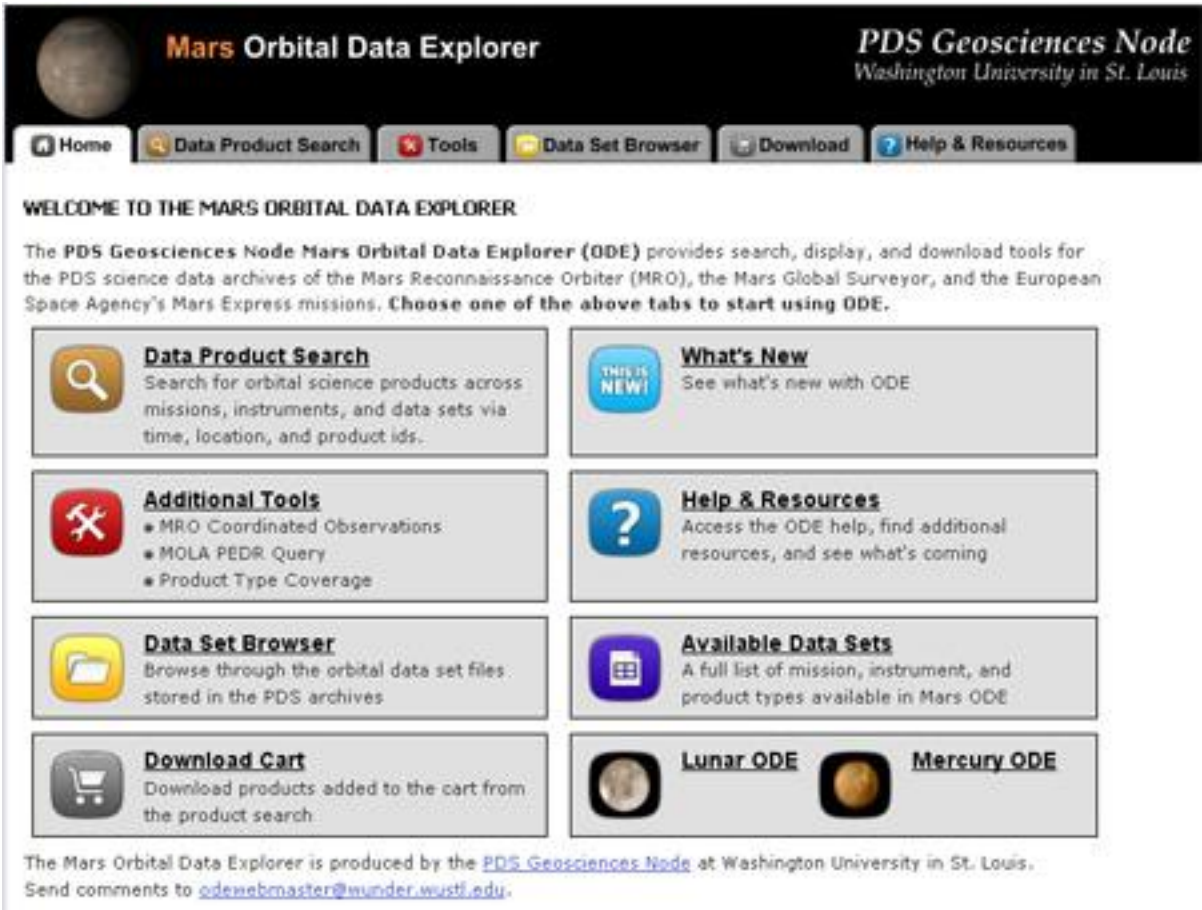
MER-A Spirit Gusev Crater Site

- Use ODE to acquire science data products
- Gusev Crater Location: -14.6N, 175.4E

Gusev Crater and ODE - 1

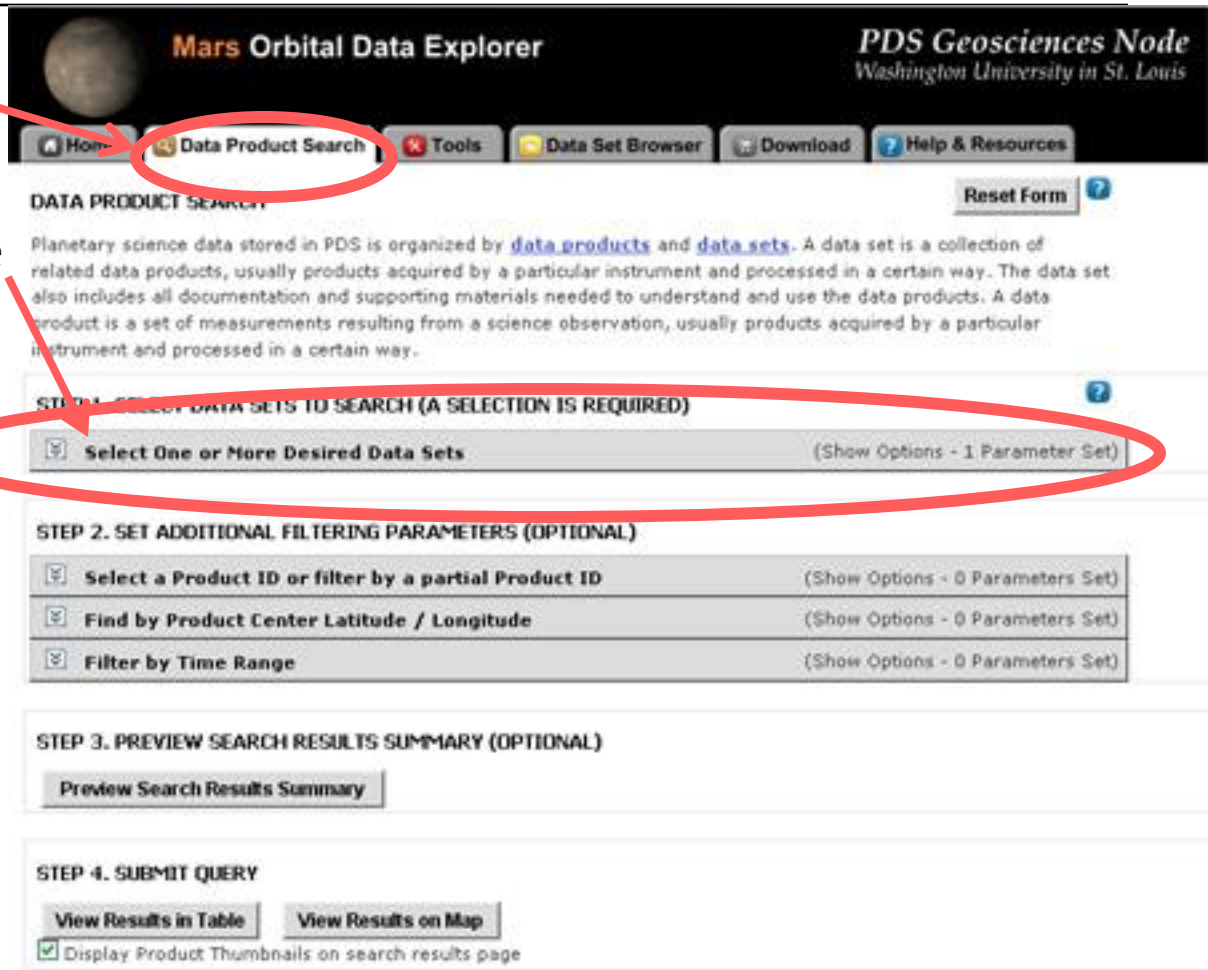
Open ODE Mars:
http://ode.rsl.wustl.edu/mars/



Gusev Crater and ODE – 2

1) Select Data Product Search Tab

2) Open the Select One or More Desired Data Sets



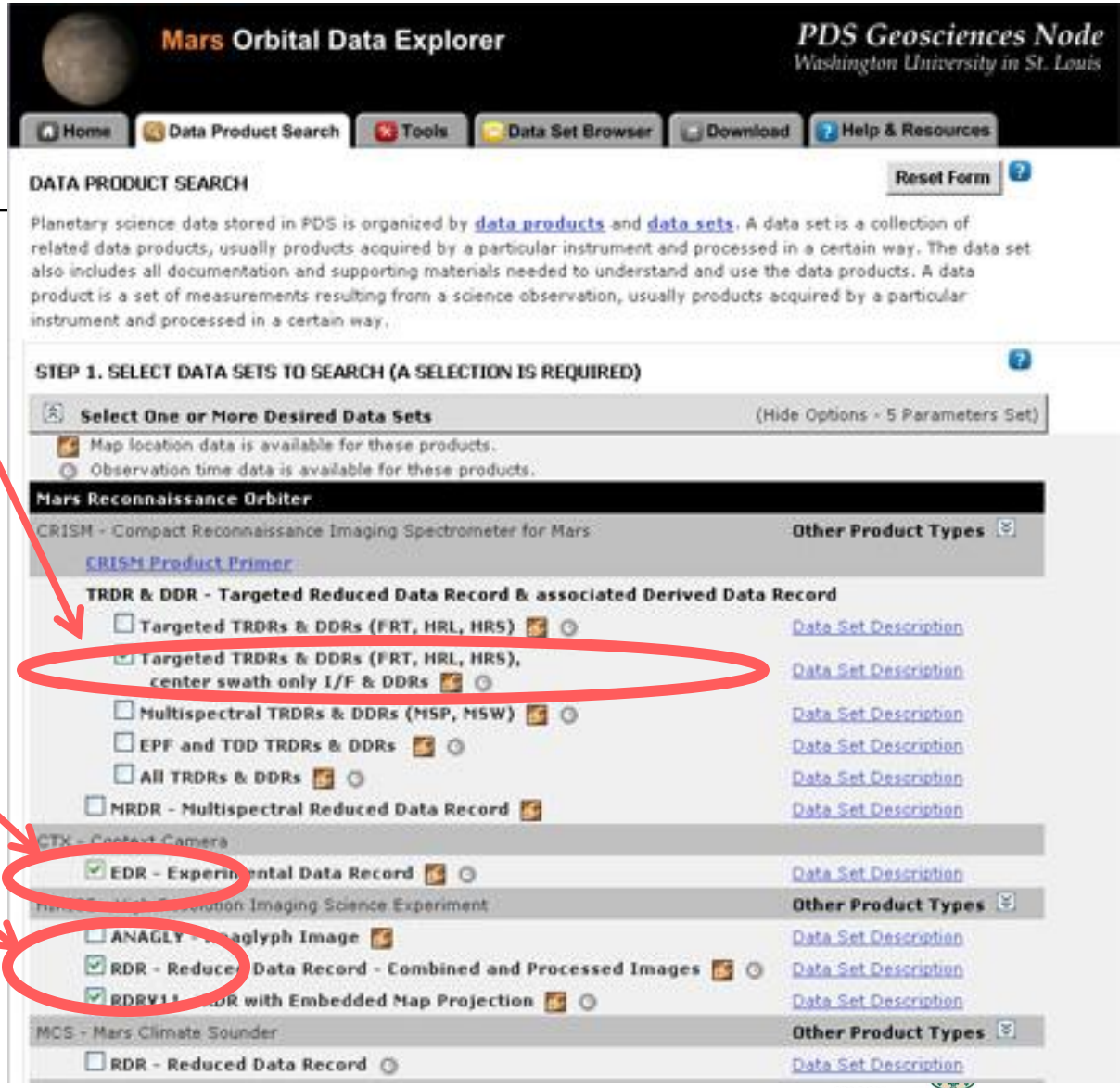
Gusev Crater ODE – 3

1) Select CRISM Targeted TRDRS & DDRs (FRT, HRL, HRS), center swath only I/Fs & DDRs

2) Select CTX

3) Select HiRISE RDR and RDRV11

(HiRISE Version 1.1 RDRs include map projection information embedded in the JPEG 2000 files)



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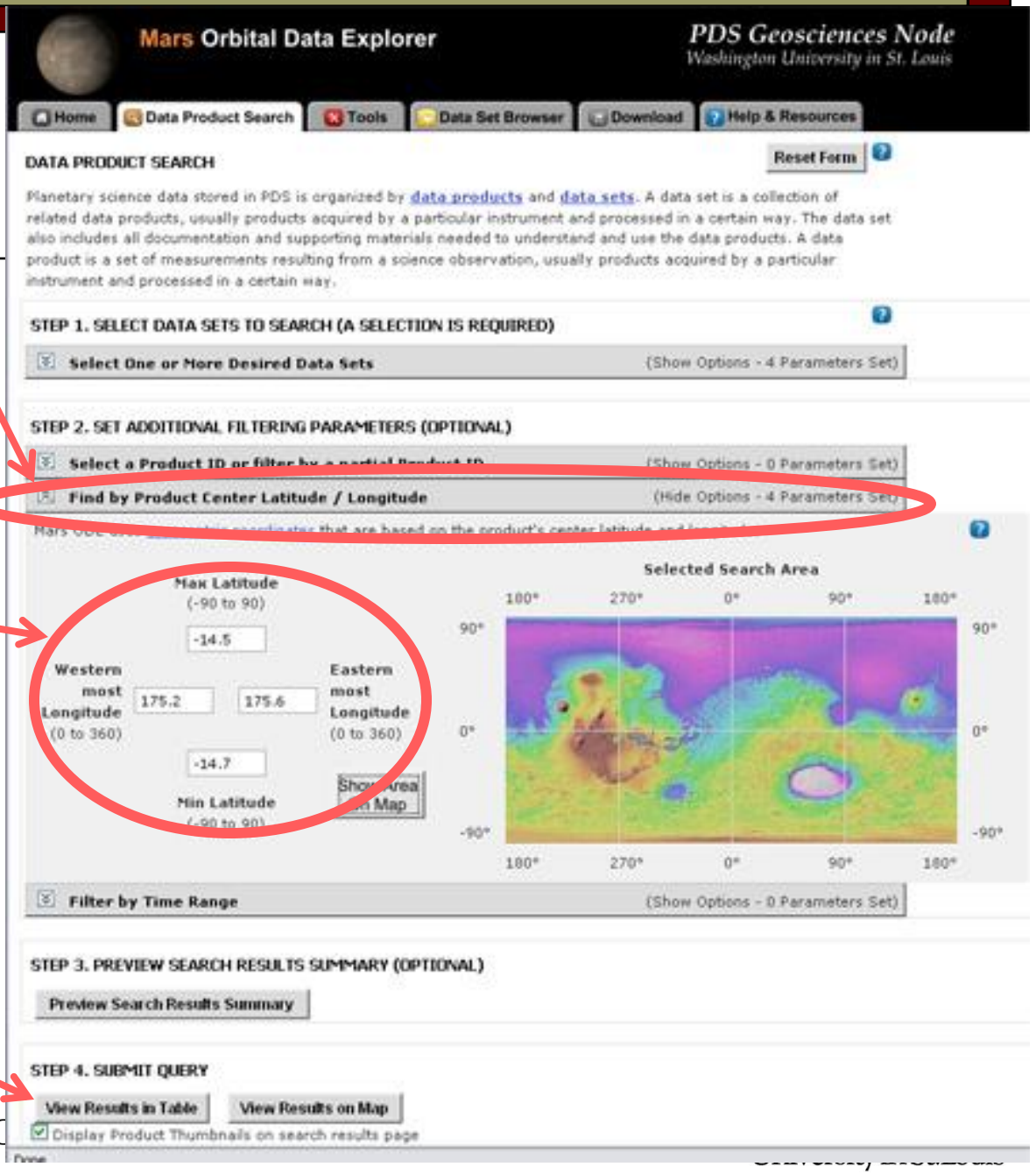
Gusev Crater ODE – 4

1) Scroll down and expand "Find by Product Center Latitude/Longitude"
2) Gusev Crater is at approximately 14.6S, 175.4E
Enter a box around this spot:
- Enter -14.5 for Max Latitude
- Enter 175.2 for West Longitude
- Enter 175.6 for East Longitude
- Enter -14.7 for Min Latitude

NOTE: Currently ODE searches on centers so you need to provide a large enough search area to catch the products you want (future versions of ODE will support search on coverage).

2) Select "View Results in Table"



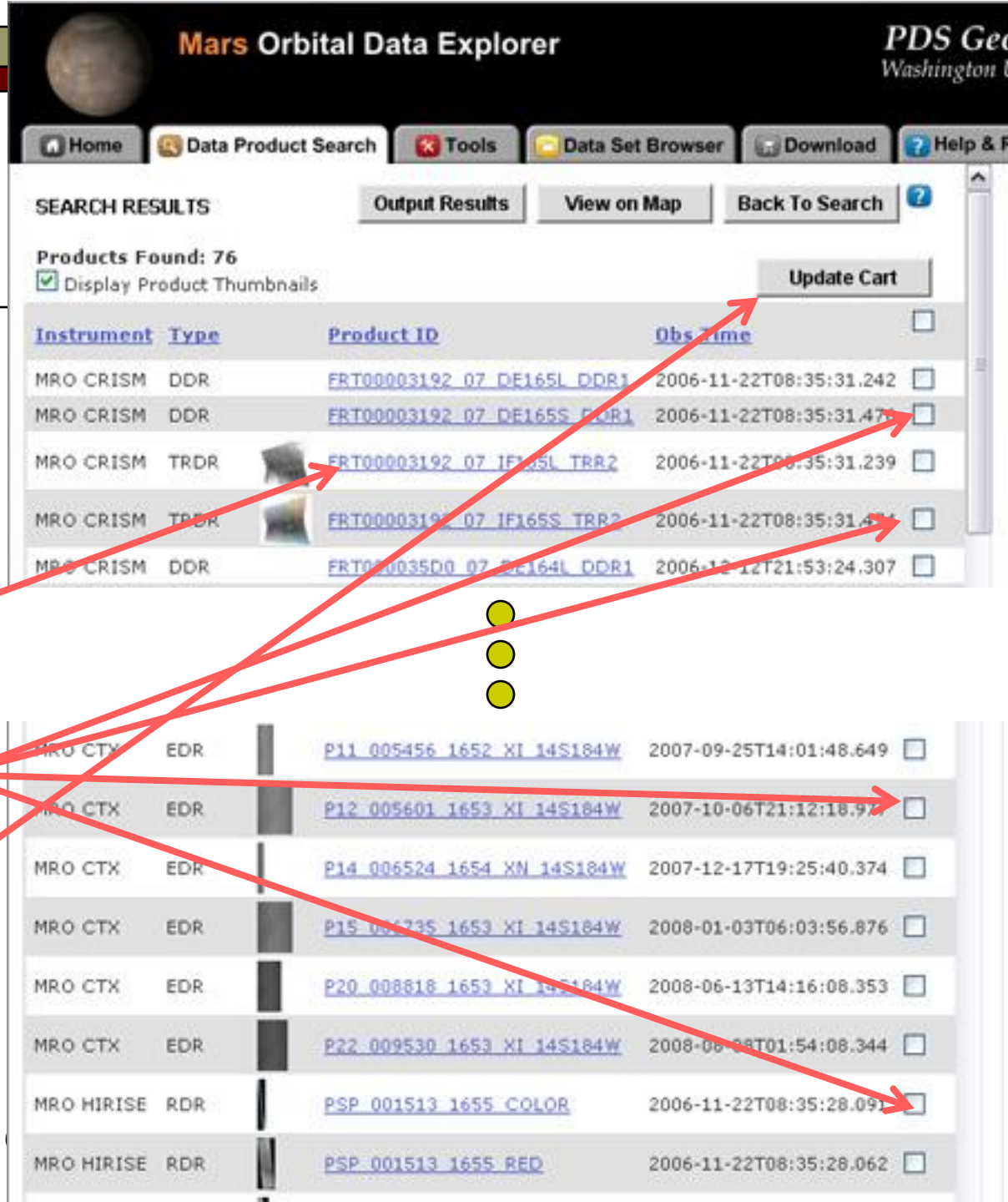
Gusev Crater ODE – 5

1) List of products found
- 76 Products:
- 16 TRDRs
- 18 DDRs
- 12 CTX
- 30 HiRISE RDR/RDRV11

2) (Optional): Explore products by selecting their product id

Select just the products you want
3) Click the box next to the product

4) Click the "Update Cart" button to add the selected products



Gusev Crater ODE – 6

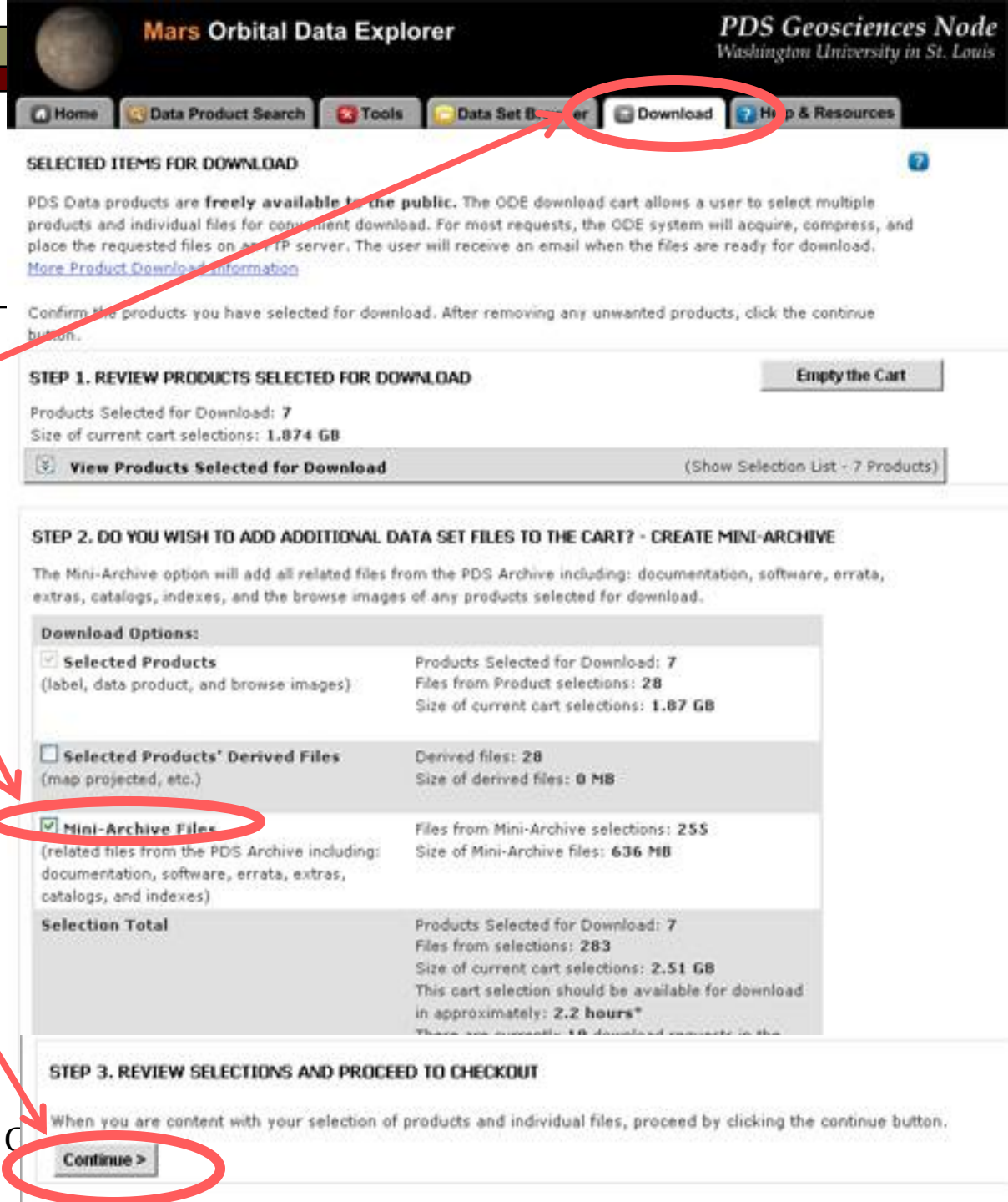
Download all products in cart:

1) Select “Download” tab

2) Select “Create Mini-Archive”

This will include all documentation, ets with products

3) Select “Continue”



Gusev Crater ODE – 7

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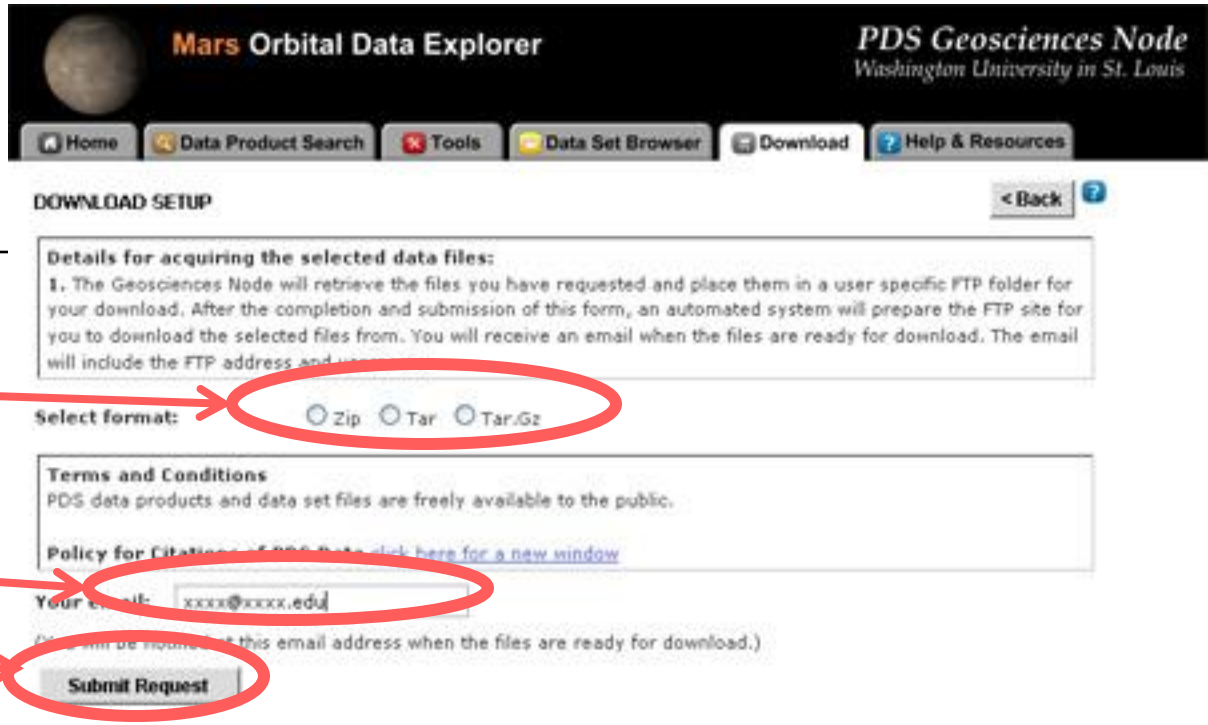

bennett@wustl.edu,

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

Your requested files are located at the following FTP address:
ftp://geoftp.wustl.edu/20090206T123548549
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

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