Accessing PDS Data in Pipeline Processing and Websites Through PDS Geosciences Orbital Data Explorer’s Web API (REST) Interface

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ODE Overview
http://ode.rsl.wustl.edu/

Orbital Data Explorer (ODE) was developed by NASA’s Planetary Data System (PDS)’s Geosciences Node. ODE provides web-based functions to search, retrieve, and download data from multiple missions and instruments in the rapidly expanding planetary data archives.

Web-Based REST API

• What is a REST API?
  • REST is an industry standard method of accessing remote data using HTTP protocols.

• What does ODE’s REST interface offer?
  • Access to the same PDS product metadata that is available through ODE’s web site. Examples include:
    • Product location - Center, Lat/Long bounding box and surface footprints
    • Observation Time, Creation Time, and Spacecraft Clock Counts
    • Observation angles (Emission, Incidence, Phase)
    • Solar Longitude and Distance
    • Map Resolution and Scale
    • Target Name
    • Product Version
    • Browse and thumbnail imagery
    • Full product labels (including referenced format files)
    • URL Links to Product Files
    • Access to ODE’s LRO LOLA RDR Query Tool
    • Results are returned in XML or JSON format

• How can I use the ODE REST interface?
  • Simply send an HTTP request of the form: “http://oderest.wustl.edu/live?query=parameters”

• Query Parameters?
  • Query Type (Metadata, Browse, Thumbnail, LOLA RDR)
  • ODE Target (Mars, Moon, Mercury, Venus)
  • Output format (XML, JSON)
  • Instrument Host (MRO, LRO, etc.), Instrument (CTX, LROC, etc.), Product Type (EDR, RDR, etc.)
  • Location
    • Lat/Long Bounding Box or Polygon-based Footprint
    • Intersection type (product footprint intersects, contains, or is contained by lat/lon bounding box or footprint)
  • Limits on the number of returned products, returned order, and range of returned products – allowing a user to “walkthrough” a large list of returned products without long query times.

• How can I get started?
  • Check out the web site – http://oderest.rsl.wustl.edu/
  • Includes On-Line Documentation and Examples
  • Contact Keith Bennett at PDS Geosciences (bennett@wustl.edu)

ODE REST V2.0 (Now in BETA test)

• What’s New:
  • Revision to TARGET argument to match IPDA standards
  • Example: Can now query for PHOBOS products
  • Query by Observation Angles (Emission, Incidence, Phase)
  • Query by Solar Longitude
  • Query for list of Instrument Hosts/Instruments/Product Types
  • Support dynamic web sites!
  • Large Browse Image queries for data set such as HiRISE
  • Query by USGS Feature Type/Name
  • New Granular Data System (GDS) REST Interface
    • Access to ODE’s LOLA RDR Query Tool
    • (Moved from ODE REST Interface)
    • Access to ODE’s MOLA PEDR Query Tool
    • Access to ODE’s Diviner RDR Query Tool
    • Example Javascript-based Web Pages
  • Now in beta test and available to all users!