Overview

The Venus Orbital Data Explorer (ODE) was developed at NASA’s Planetary Data System’s (PDS) Geosciences Node for online searching, examination, and downloading of Venus data. Capabilities include:

- Cross-instrument, cross-mission searches
- View search results in tables or maps
- Select and download individual products or customized “mini-archives”
- GIS-like map interface
- Download product coverage files in KML (Keyhole Markup Language) and shapefile formats

Data Sets / Instruments

- Magellan mission
  - Radar mapper and altimeter
    - Basic image data record (BIDR) at compressed/full-resolution
    - Full-resolution mosaicked image data record (FMIDR) in sinusoidal equal-area and polar stereographic map projections
    - Compressed MIDR data at once (C1), twice (C2), or thrice (C3) compressed-resolution
    - Full resolution radar mosaics (FMAP)
    - Altimeter and radiometry composite data record (ARCDR)
    - Altimeter experiment data record (ALITEDR)
    - Surface characteristics vector data record (SCVDR)
    - Global emissivity/reflectivity/slope/topography/vector data records
  - Radio Science Subsystem (RSS): Gravity data / Line of sight acceleration profile (LOSAPDR) / Radio occultation data

- Venus-flyby portion of the MESSENGER (Mercury Surface, Space Environment, Geochemistry and Ranging) Mission
  - Gamma Ray Spectrometer (GRS)
  - Mercury Atmospheric and Surface Composition Spectrometer (MASCS)
  - Mercury Dual Imaging System (MDIS) with Narrow Angle Camera (NAC) and Wide Angle Camera (WAC)
  - Mercury Laser Altimeter (MLA)
  - Neutron Spectrometer (NS)
  - Radio Science (RSS)
  - X-Ray Spectrometer (XRS)

Functions / Key Features

Product Search by

Example 1, search across missions & instruments at Aphrodite Terra

- Data set (mission, instrument, product type)
- Product ID or partial product ID
- Product location/product coverage
  - Select a specific feature, or
  - Directly specify a latitude & longitude coverage area
- UTC Time range

Map Interface

Map capabilities
- Navigation toolbar: pan, zoom in/out
- Select products by area tool
- Search data using the map display controls
- Basemaps and product footprints available in four projections (simple cylindrical projections centered at 0 / 180 longitude; stereographic projections at north / south pole)
- Multiple basemap and footprint map layers overlay, transparency adjust

Example 2. Search Magellan FMDIR, FMAP, and ARCDR data for Maxwell Montes using the map interface

Tools - Footprint Coverage Explorer

Provide Venus product coverage files in KML and ESRI shapefile formats to Google Earth and other GIS tools

Example 3. Magellan FMAP (blue rectangles) and ARCDR (blue lines) footprints overlaid on the Magellan SAR (Synthetic-aperture radar) backscatter basemap (colorized with Topography from UNAVCO) at Maxwell Montes using Google Earth

Example 4. Magellan FMAP footprints overlaid on the Magellan C3 MIDR Global Mosaic at Aphrodite Terra

Also available - Mars, Moon, and Mercury ODEs

Include products from the following missions
- Mars Reconnaissance Orbiter (MRO)
- ESA’s Mars Express
- Mars Odyssey
- Mars Global Surveyor
- Viking Orbiter
- Lunar Reconnaissance Orbiter (LRO)
- ISRO’s Chandrayaan-1
- Clementine
- Lunar Prospector
- Lunar Orbiter
- MESSENGER