

The exploration of planetary bodies in the solar system has included the use of a number of unmanned spacecraft throughout the past 50 years. The data collected from these remote orbiters (and a few ground based systems) have provided a wealth of information about the processes that form and shape the planets. A large portion of the data collected by modern planetary orbiters and probes is freely available via internet, allowing amateurs and students access to invaluable scientific results.

This laboratory will serve as an introduction to digital planetary data freely available on the internet.

Your assignment is to find an area of interest with data available from the internet. You can pick any planetary body, but I'd recommend Mars or the Moon so that you can just use Google Earth to access data (click the Saturn-shaped icon at the top and you can switch planets). If you are interested in another planetary body, there is a list of links at the end of this assignment that can provide a good starting point in your exploration. Ideally your area of interest will have multiple data sources, and will be large enough to allow you to determine whether aspects of the environment have changed over time.

1. Describe your chosen location. What features are visible in the region?
2. What instrumentation are you using to investigate your area of interest?
3. Are there differences among datasets providing coverage of your site? Are certain features invisible or accentuated with different sensors?
4. If your area is imaged at different times, comment on any changes you see.
5. What recommendations would you make to NASA in order to capture more information about your chosen area?

Some Internet Resources for Planetary Geology

Planetary Data System (PDS) (this is the official repository for all NASA data as well as most ESA and JAXA data): <http://pds.jpl.nasa.gov/>

NASA home page:

<http://www.nasa.gov>

Planetary images:

<http://photojournal.jpl.nasa.gov/index.html>

Hubble pictures:

<http://hubblesite.org/newscenter/>

General Solar System sites:

<http://csep10.phys.utk.edu/astr161/lect/index.html> (online part of a course on planetary astronomy)

CASSINI MISSION TO SATURN

<http://saturn.jpl.nasa.gov/>

MESSENGER MISSION TO MERCURY

<http://messenger.jhuapl.edu/>

NEW HORIZONS MISSION TO PLUTO AND BEYOND

<http://pluto.jhuapl.edu/>

MARS SPECIFIC:

Mars Global Data

<http://global-data.mars.asu.edu/>

Mars Observer Camera

<http://www.msos.com/>

Mars Pathfinder:

<http://mpfwww.jpl.nasa.gov>

The Martian Rovers:

<http://marsrovers.jpl.nasa.gov/home/index.html>

Mars Express (European orbiter):

http://www.esa.int/export/SPECIALS/Mars_Express/index.html

Mars Odyssey Mission:

<http://mars.jpl.nasa.gov/odyssey/>

Mars Reconnaissance Orbiter:

<http://marsprogram.jpl.nasa.gov/mro/>

HiRISE Camera:

<http://hirise.lpl.arizona.edu/>

CRISM Imaging Spectrometer:

<http://crism.jhuapl.edu/>