

**THE PLANETARY DATA SYSTEM EDUCATIONAL CD-ROM DEMONSTRATION; M. A. Dale-Bannister, McDonnell Center for the Space Sciences, Department of Earth and Planetary Sciences, Washington University, St. Louis, Missouri 63130-4899.**

A chief purpose of the PDS Educational CD-ROM is to provide PDS-compatible data sets to the research and educational communities and help provide for an understanding of how planetary exploration and science are achieved. The Planetary Data System (PDS) Educational CD-ROM contains 5 analysis modules and a multimedia program called Journey to the Planets. The analysis modules are for use in planetary geology studies from the undergraduate through the graduate level. Journey to the Planets is an interactive, multimedia system that can be used with a more general audience and runs on Macintosh, personal computer systems running Windows, or Silicon Graphics work stations.

Journey to the Planets is a tool for presenting the excitement of planetary exploration to advanced and beginning students in planetary geology. Journey to the Planets is activated by clicking on the Journey icon within the file management system. The student chooses his own path through Journey to the Planets, using a "point and click" interface, by selecting first a planet or small body of interest. Individuals unfamiliar with "point and click" interfaces will find a brief user's guide in the Journey directory of the Educational CD-ROM. After selecting a planet or small body, the student may select an image from a menu, consisting of thumbnail renditions (very small, reduced versions) of the images available, for the selected planet or small body. Each image has a caption that appears on the screen, next to the image. By clicking buttons labeled with icons the student can guide himself, based on interest. Choices include having the computer read the caption aloud (volume control is available as a slider); selecting a "zoom-in" mode, where the student can get a high-resolution view of a feature of interest; selecting a spacecraft information mode, where the student learns about the spacecraft that acquired the image through another system of images and captions; or selecting the next or previous image in the stack available for the chosen planet.

The interactive interface makes Journey to the Planets easy to use and generates student interest because it allows the student to choose his own path. An instructor can also guide the student's path through the program by providing exercises in which Journey is used as a tool. For example, a set of questions about Venus might be prepared by the instructor in such a way as to guide the student through a path in the program that includes investigations of Venusian volcanology and the Magellan spacecraft.

The analysis modules include one module on photometric analysis of Voyager images of Titania using SPICE kernels and NAIF software. Another module involves an analysis and comparison of meteorite and asteroid reflectance spectra with reflectance spectra of minerals taken on Earth. There is a module that uses Viking

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Orbiter images and topography combined with line-of-site gravity measurements to investigate gravity anomalies over Olympus Mons on Mars. A fourth module uses chemical analyses of Apollo 17 samples, an Apollo orbital image that covers the area in which samples were acquired, and linear mixing models to develop a scenario for the evolution of one area on the moon. A fifth module examines Magellan SAR mosaics, as well as altimetry and emissivity data sets covering Sapas and Maat Mons on Venus. The volinfo.txt file contains detailed text for each analysis module that explains the purpose of the module, and any software and data associated with it. A background discussion document is also included in the documentation directory of the CD-ROM. This document provides quantitative background material necessary for the student to take maximum advantage of the module exercises. Topics included in the background document include radiance, irradiance, Fresnel and volume scattering, the Planck Function, emissivity, Kirchoff's Law, and the basics of radar backscatter theory. The use of SPICE for photometric analysis of Voyager 2 images of Titania is also discussed.

The Educational CD-ROM is available from the Planetary Data System through the Geosciences Node for NASA-sponsored researchers. To place an order contact Mary A. Dale-Bannister (internet: dale@wunder.wustl.edu; telephone: 314-935-6652). Individuals not sponsored by NASA should contact the National Space Science Data Center (NSSDC - internet: request@nssdc.gsfc.nasa.gov; telephone: 301-286-6695).