The compilation of radar observations of the Venus surface from the Magellan mission data has resulted in over 70 gigabytes of radar reflectivity and radiometry images and altimetry profiles covering over 98% of the surface of Venus. The Magellan image data are available from the Planetary Data System on 129 CD-ROM volumes, the altimetry data on 15 CD-ROM volumes and the global topography, radiometry and surface slope composite data are available on a set of 2 CD-ROM volumes. To facilitate access, analysis and display of these data, a software environment, McIDAS-explorer has been developed. This planetary image system is based on a mature system that is used extensively for Earth weather satellite observations and the extensions now allow analysis of most solar system targets for which spacecraft and ground based telescopic data are available in a large number of recognizable formats. Navigation, registration and calibration of the planetary data are an integral part of the environment. Designed to run on most UNIX workstations supporting X-windows, the environment is user extensible allowing addition of user developed applications and includes both a Graphical User Interface and a command line interface, multi-frame display and animation capability and tools for most image processing applications such as digital enhancements, filters, cartographic projections, graphical overlays, and color composites.

McIDAS-explorer is a multi-processing environment and can run as many applications or user sessions as practical under the computing, memory and peripheral storage resources available. Batch processing is supported as well as the ability to create or use different user interfaces such as a function key template, a graphical user interface or the command window. A simple macro facility allows quick creation of specific command sequences that are used repetitively.

In order to fully exploit the navigation, calibration, display and animation capabilities of McIDAS-explorer, the data are first imported into McIDAS-explorer along with all available navigation and calibration data and stored in the workstation in a specific format. Processing history records are kept for each image imported along with the entire text label that the image was tagged with (e.g. the PDS or the VICAR label). The supplementary calibration information for the radar images to convert raw data numbers into radar reflectivity is accessible to the system, such that while roaming (with the use of a mouse controlled cursor) in a displayed image, the system can automatically convert the raw data to reflectivity as the user moves the cursor over different areas of the image.
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image, the full calibrated and navigated data (incidence angle and radar reflectivity in dB, latitude and longitude) can be retrieved at the cursor location. The altimetry and radiometry data can be found and plotted over an image. All the Venus nomenclature is available for inserting into the plots.

These capabilities will be demonstrated using Magellan data at the conference.

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