

THE INTERNATIONAL MARS DATA BASE; Susan Slavney¹, Raymond E. Arvidson¹, Karin Eichentopf², Michael Natenzon³, Tatiana Kirsanova³, Vladimir Tarnopolsky³,
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The next five years will witness the beginning of a period of unprecedented activity and interest in the exploration of Mars. Numerous missions are scheduled involving a broad array of spacecraft and instrumentation, and several important experiments will depend on international collaborations. They include Mars Global Surveyor and Pathfinder to be launched in 1996, along with the Russian Mars 96 Mission. Through the Mars Surveyor Program, a lander will descend to the south polar latitudes in 1999 while an orbiter circles the planet and acquires images and infrared data. These missions will produce a welcome deluge of new data, as well as a sharp increase in the demand for data from past Mars missions. One result of this increased activity will be the need for a rapid, efficient system for sharing new data with the scientific community after the proprietary periods have elapsed. With the boom in growth of the Internet, it is now possible to design a system for international access using ordinary laboratory and desktop computers. The advantage of using the World-Wide Web as the basis for such a system is that the infrastructure is already in place, as many users are already accustomed to using Web browsers to locate and transfer information.

In anticipation of the need for this system, the International Mars Data Base is currently in development by the Planetary Data System (PDS) Geosciences Node, Washington University, St. Louis, in collaboration with the Institut für Planetenerkundung, Deutsche Forschungsanstalt für Luft-und Raumfahrt (DLR), Berlin, and the Space Research Institute (IKI), Moscow.

As a first step in this effort, the PDS Geosciences Node developed a database of Viking Orbiter EDR images, based on the set of Viking Orbiter image CD-ROMs published by PDS. This database, implemented using the Sybase DBMS, has been installed at DLR (home of the PDS Data Node for the Mars 96 HRSC/WAOSS cameras) and IKI (location of the prototype Russian PDS) as well as at Washington U. The development of an HTML interface to access the database is currently underway (Fig. 1). The Geosciences Node has been involved with the PDS Image Node in implementing the Clementine Navigator, a similar system involving an HTML interface to a database of images from the Clementine lunar mission. Experience gained from the Clementine Navigator development has been useful in creating the Viking Orbiter interface.

The Viking Orbiter image database and HTML interface form the basis of the beginning of the International Mars Data Base. The interface, which can be accessed by a World-Wide Web browser with forms support, allows the user to select images based on latitude-longitude location, lighting and viewing geometry, camera and filter, and other parameters. Selected images can be viewed on the screen, downloaded immediately in various formats, or ordered on CD-ROM. The interface is soon to be installed at IKI and DLR, who will act as mirror sites for the database.

After peer review in June 1996, the International Mars Data Base will become operational. The next version of the IMDB, planned for release in the fall of 1997, will incorporate the Viking IRTM data and data from the Russian Termoskan on the Phobos mission. Later versions will include the first new Mars data in nearly twenty years, beginning with Pathfinder in 1998.

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SEARCH FOR MARS DATA PRODUCTS

Click on the map to zoom in to the area you want to search. Use the arrows to shift the map.

SEARCH FOR MARS DATA PRODUCTS

Click on the map to zoom in to the area you want to search. Use the arrows to shift the map.

ZOOM OUT

WHOLE PLANET

CENTER map at:

0.0 latitude

180.0 longitude

CHANGE map to:

geologic map

When the map shows the area you want, you may choose one of these search options:

SHOW locations of **Viking EDR** products on the map

COUNT number of **Viking EDR** products within map boundaries

LIST individual **Viking EDR** products within map boundaries

You may also specify additional search constraints in any or all of these categories. Click on a tab to see the parameters for that category.

INSTRUMENT **GEOMETRY** **TIME** **MAP** **FEATURE**

Instrument parameters

Spacecraft: Viking Orbiter 1 Viking Orbiter 2

Camera: VIS-A VIS-B

Filter: CLEAR RED GREEN BLUE MINUS BLUE VIOLET

Gain mode: HIGH LOW

Flood mode: ON OFF

Offset mode: ON OFF

Exposure duration: Values range from 0.0 to 814.5.
(minimum) (maximum)

To apply these constraints, click on the SHOW, COUNT or LIST button above. Constraints from all five sections (instrument, geometry, etc.) will be applied to the area currently shown on the map.

Figure 1. Schematic of World-Wide Web interface to the International Mars Data Base.