

## **The Planetary Image Research Laboratory (PIRL)**

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The Planetary Image Research Laboratory, located on the fourth floor in the Kuiper Space Sciences building, is available for use to all qualifying University faculty, staff, and students. We provide hardware, software, and administrative support for planetary imaging projects.

Several groups within LPL, including Catalina Sky Survey, Gas Atmospheres, Planetary Dynamics, Spacewatch, and the Space Imagery Center use PIRL for administrative and data support. We presently maintain over 350 user accounts.

Here are some projects that PIRL and affiliated users are presently working on:

- ◆ Cassini ISS targeting and science analysis.
- ◆ Data reduction of asteroid and comet surveys.
- ◆ Galileo SSI data analysis.
- ◆ Mars Global Surveyor Mars Orbiter Camera (MOC), doing image targeting and analysis.
- ◆ MGS Mars Orbiter Laser Altimeter (MOLA) data analysis.
- ◆ Numerical codes.
- ◆ Space Telescope image analysis.
- ◆ Study of planetary atmospheres.

Supported image processing software includes the ISIS (Integrated Software for Imaging Spectrometers) package, VICAR, IDL, IRAF/STSDAS, plus many public domain and commercial software packages. Users can install particular software packages for use by everyone on the system via a public package system automatically included in all user's logins.

For long term storage of data, we maintain 4mm and 8mm tape drives, and CD and DVD recorders. We have an archive disk array with a capacity of 480 GB of on-line read-only storage. Presently there is approximately 550GB of available read/write data storage on our Fibre Channel and SCA disk arrays. Backups are maintained using an AIT library capable of holding up to 1.5TB of data. Our static storage will soon be augmented by a DVD library. Such a library will expand our available on-line storage capacity to over 6 TB.

A web server exists at <http://pirlwww.lpl.arizona.edu> that includes information on the system, as well as links to related LPL projects. An anonymous FTP site at <ftp://pirlftp.lpl.arizona.edu> is also available for use by all users and is also used to provide access to locally developed public domain software. Several group FTP sites are also maintained for specific uses, such as for uplinking Spacewatch imaging data, providing team access to Mars Global Surveyor data and software, distribution of released Galileo spacecraft data products, distribution of Space Grant materials, etc.

Available output media devices include a duplexing 1200dpi laser printer, a duplexing 1200dpi color laser printer, 2 page-sized photo quality dye sublimation printers, a wide B dye sublimation printer, and two 4Kx4K 35mm film recorders. We also have the capability for poster-sized photo-realistic image output via a new HP-5000 42" roll feed printer.

Our network consists of mainly Sun computer systems. Hardware upgrades of the PIRL system are always in progress. Recent additions include 4 new Sun Blade 100 systems (1 configured with dual displays), a new dual-processor MacOS X box and upgraded X86 Windows and Linux boxes. We're planning full Linux and MacOS X integration into the network. Multiarchitecture binary support has already been implemented. Our central servers are a Sun E3000 and a Sun E3500. Our network is a 100Mb fully switched Ethernet, attached to the outside world via a 100Mb switched uplink. Routing/firewall hardware will soon be implemented to provide a secure high-speed computing environment. In the works is support for a Beowulf style computing system for CPU-intensive applications. We also support DHCP clients, and an 8 port terminal server and a bank of 56K modems is also available for dialup networking support.