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CENTRAL COMPUTER SERVICES



IRAF Update

Doug Tody and Jeannette Barnes

The IRAF V2.11.2 patch release, mentioned in the previous issue of this *Newsletter*, was released in August for selected platforms. This patch supports all Sun Sparc systems (SunOS, and Solaris 2.5.1, 2.6, 2.7, Solaris 7), Digital Unix 4.0 (now Compaq Tru64), OpenVMS running on the Alpha chip, and VAX/VMS. This odd collection of platforms is a reflection of the internal operational priorities (primarily for pipelines) of the institutions that develop IRAF. As a reminder, an IRAF V2.11 patch (version V2.11.2 or greater) is required for anyone running IRAF to make IRAF Y2K (Year 2000) compliant. Fixes are required to fix several Y2K-related bugs, as well as to implement support for the new format, Y2K-compliant FITS date format. Further information on the Y2K compliance of IRAF is available on our Web page at <http://iraf.noao.edu/projects/y2k>.

As this article is being written, an upgraded version of PC-IRAF is in testing, with a release planned for mid-November. The new version of PC-IRAF will run IRAF V2.11.3; a V2.11.3 patch will be released to upgrade the platforms for which V2.11.2 was released in August. Shortly after the PC-IRAF upgrade is out, we will upgrade the remaining IRAF platforms (e.g., HP, SGI, AIX) so that the V2.11.3 patch is available for all supported platforms. The new release of PC-IRAF will support FreeBSD 3.3, RedHat Linux 6.1, Slackware Linux 4.0, Solaris 7 for Intel, and SUSE Linux 6.2. The Solaris x86 and SUSE platforms are new ports. Linux on Macintosh (another new port) is not included in this upgrade, as it was just too much to do all at once, but we will try to get it out as soon after the

upgrade as possible. Currently we are favoring LinuxPPC and Yellow Dog Linux over MkLinux, due to the limited support for the latter platform.

Our new IRAF data acquisition and quick look environment, the Mosaic Data Handling System, was extended in June to add support for the CTIO Mosaics and Mosaic II. Efforts are underway to add support for 16 amp readout to reduce the readout times for the Mosaic (the DHS already supports this, but further system tuning and testing are required).

As part of the Mosaic DHS support, we have been looking at the problem of doing heavy image *i/o* systems like Solaris, which use a virtual memory file system for all ordinary file *i/o*. Heavy image processing on such a system runs a large amount of data through the virtual memory file system, causing heavy paging in some circumstances. A caching scheme is being investigated to avoid this problem. This scheme will continue to use ordinary file *i/o* to access images, and image data will be cached in system memory in the usual way, but we will control the caching of data in system memory to minimize the paging that occurs when memory fills and the system pageout daemon is run. The caching scheme will be implemented initially for the Mosaic DHS, but may migrate to the IRAF system itself in a later release. If it proves successful, the cache control scheme could be very beneficial for any virtual memory file system computer used for heavy file *i/o*. This code is part of the distributed shared image facility being supported in part by the NASA ADP Open IRAF and AISR PIE grants.

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Work continues on the automated pipeline system that is being developed initially to pipeline process Mosaic data. We are just wrapping up work on the database system. A database has been defined that will be used to catalog all raw and processed data, as well as keep track of all data as it flows through the system. Work on the pipeline modules, which are mostly IRAF MSCRED tasks, is coming along well. This now includes facilities for automated astrometric and photometric calibration of data frames. Work on the data extraction subsystem, pipeline GUIs, and the pipeline manager is next up.

Several NOAO staff scientists and members of the IRAF group met with Gemini staff at the Gemini Observatory headquarters in Hilo in late August to begin planning jointly-developed IRAF facilities for reducing data from the Gemini instruments. This meeting was very productive and has resulted in a preliminary development plan extending through the year 2000. The new software is expected to provide not only support for the Gemini instruments, but much improved general IRAF support for multi-extension image and spectral data formats, variance arrays and variance handling, IR reductions, multispectral instruments including IFU support, and eventually, support for adaptive optics.

During this quarter, work has resumed on the IRAF astrometry package. A general catalog access applications programming interface has been developed that can be used within IRAF applications to make network connections to catalog servers, format and send catalog queries, and to decode query results. The new catalog access facilities are currently being used to build a new astrometry tool that will support multiple catalogs.

The IRAF programmers attended the 1999 ADASS Conference in Hawaii in early October. Several IRAF-related papers were presented by the programmers at the Conference, and these papers will appear in the conference proceedings to be published next year as part of the Astronomical Society of the Pacific Conference Series.

“A Web Interface for Access to NOAO Spectral Atlases,”
Matthew Cheselka

“A New IRAF Catalog Access Tool for Astrometry,”
Lindsey Davis

“XHelp: A Help Navigator for the IRAF System,”
Mike Fitzpatrick

“Save the Bits - New Features for a New Millennium,”
Rob Seaman

“A Spectroscopy Exposure Time Calculator for IRAF,”
Frank Valdes

“What’s New in Mosaic Reductions at NOAO,”
Frank Valdes

“FITS Foreign File Encapsulation”,
Nelson Zarate

For further information about the IRAF project, please see the IRAF Web pages at <http://iraf.noao.edu/> or send e-mail to iraf@noao.edu. The *adass.iraf* newsgroups (available on USENET or via a moderated mailing list which you can subscribe to by filling out a form on the IRAF Web page) provide timely information on IRAF developments and are available for the discussion of IRAF related issues.



NOAO and Y2K

Steve Grandi

It seems that everybody has a Y2K compliance plan—your bank, your utility companies, your PC vendor, your mechanic, and the kid down the street with a lemonade stand. NOAO is no exception: the current state of our Y2K preparations can be seen at <http://www.noao.edu/y2k/>.

Seriously, there are important Y2K issues with FITS records and with IRAF; see <http://iraf.noao.edu/iraf/web/projects/y2k> for a thorough discussion. Also, over the night of 31 December 1999–01 January 2000, the NOAO night-time observatories will be shut down (just in case!). On the next night, there will be no visiting observers and all telescope and instrument systems will be verified before science observations re-commence.

NOAO FTP Archives

Jeannette Barnes

The NOAO FTP archives are found at the following FTP addresses. Please log in as “anonymous” and use your e-mail address as the password. Alternate addresses are given in parentheses.

ftp [ftp.sunspot.noao.edu](ftp://sunspot.noao.edu) (146.5.2.181), cd pub
 SP software and data products—coronal maps, active region lists, sunspot numbers, SP Workshop paper templates, meeting information, SP observing schedules, NSO observing proposal templates, *RISE Newsletters* and SP newsletters (*The Sunspotter*). The NSO/SP archive can also be reached at <http://www.sunspot.noao.edu/ftp/>.

ftp [ftp.gemini.edu](ftp://gemini.edu) (140.252.15.71), cd pub
 Archives for the Gemini 8-m Telescopes Project.

ftp [ftp.noao.edu](ftp://noao.edu) (140.252.1.54), cd to:
 catalogs—Jacoby et al. catalog; “*A Library of Stellar Spectra*”; update to Helen Sawyer Hogg’s “*Third Catalogue of Variable Stars in Globular Clusters*”; “*Hipparcos Input Catalogue*”; “*Lick Northern Proper Motion Program: NPM1*”; “*Coudé Feed Spectral Library*”; “*General Catalog of Variable Stars, Volumes I-V 4th ed.*” and “*Name-Lists of Variable Stars Nos. 67-72.*”

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ftp *ftp.noao.edu* (140.252.1.54), cd to: *(continued)*

ctio (*ftp.ctio.noao.edu*, cd ctio)—CTIO archives—Instrument manuals, 4-m PF plate catalog, filter library, standard star fluxes. (Nightly mirror of CTIO FTP site.)

fts (*argo.tuc.noao.edu*, cd pub/atlas)—Solar FTS high-resolution spectral atlases.

gong (*argo.tuc.noao.edu*, cd pub/gong)—GONG helioseismology software and data products—velocity, modulation and intensity maps, power spectra.

iraf (*iraf.noao.edu*)—IRAF network archive containing the IRAF distributions, documentation, layered software, and other IRAF related files. Login to *iraf.noao.edu* directly to download large amounts of data, such as an IRAF distribution.

kpno (*orion.tuc.noao.edu*)—KPNO archive of filter lists and transmission data, CCD and IR detector characteristics, hydra (WIYN) information, instrument manuals, 4-m PF platelogs, reference documents, and sqiid data reduction scripts.

kpvt (*argo.tuc.noao.edu*)—KP VTT solar data products—magnetic field, He I 1083 nm equivalent width, Ca II K-line intensity.

noao (*gemini.tuc.noao.edu*)—US areacodes and zipcodes, various LaTeX tidbits, reports from Gemini WG on the high resolution optical spectrograph, etc.

nso (*orion.tuc.noao.edu*)—NSO observing forms.

sn1987a—An Optical Spectrophotometric Atlas of SN 1987A in the LMC.

tex—LaTeX utilities for the AAS and ASP.

utils—PostScript tools.

wiyn (*orion.tuc.noao.edu*)—WIYN directory tree containing information relating to the WIYN Telescope including information relating to the NOAO science operations on WIYN.

IP numbers for machines mentioned above:

<i>argo.tuc.noao.edu</i>	=	140.252.1.21
<i>ftp.ctio.noao.edu</i>	=	139.229.2.67
<i>gemini.tuc.noao.edu</i>	=	140.252.1.11
<i>iraf.noao.edu</i>	=	140.252.1.1
<i>orion.tuc.noao.edu</i>	=	140.252.1.22

Questions may be directed to: Tom Ingerson (*tingerson@noao.edu*) for the CTIO archives, Frank Hill (*fhill@noao.edu*) for all solar archives, Steve Grandi or Jeannette Barnes (*grandi@noao.edu* or *jbarnes@noao.edu*) for all others.

For further information about NOAO, visit the Web at: <http://www.noao.edu/>.

