for the data, except maybe in the case of spectral data (several 10**3 bytes), which could be transmitted at least locally.

However, the main reason (in addition to bulk) why the data will normally not be available on-line is the fact that it is indeed difficult to keep them on-line. To make a year's worth of data available on-line would require a robotic arrangement able to handle in the order of 500 12-inch platters. Not only would this require a substantial amount of money, it is also very difficult to plan in the absence of operational experience. Thus it is foreseen to initially perform the actual de-archiving of data through operator intervention; this also provides an additional measure of data security.

Before accessing the HST catalogue, an identification phase will be needed: browsing the catalogue, a free-of-charge activity, will require just selfregistration, while data retrieval will require privileged ST-ECF staff intervention, if involving costs for the user.

Scientists will use STARCAT to browse through the HST observations catalogue and, through its form-filling mechanism, to identify and select data of interest. From within STARCAT, users will then issue a de-archive request which will be verified for validity, existence and proprietary status of data, and available user credit, and finally queued for operator action. STARCAT can then be left, and the system will notify completion of operations via an e-mail message.

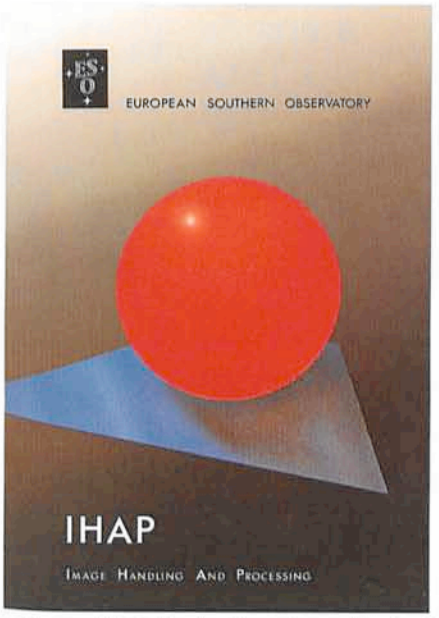
When the files are retrieved, they will be directly delivered on the user's data analysis work area on disk, if at ESO/ST-ECF; otherwise, a hard medium will be produced. Magnetic tapes are currently supported; upon special request, data can be shipped also on 8-mm cartridge tapes or Maxtor 5" 1/4 WORM OD's. As the market develops, other storage media are likely to become available.

Current Status

At this time the hardware elements of the archive are in place and the software has been developed. An end-to-end test of a data transfer from the HST (at that point it was located in a clean room at Lockheed) through the NASA system, through the DMF at the STScI, into the ST-ECF Science Data Archive was carried out earlier in order to verify that the planned transfer will indeed work. An archive readiness review was held at the STScI in mid-November. At the present time we are going through the final preparations for launch. The overall archive system is being exercised at the ST-ECF, before the first HST data are available to users (roughly 7 months after launch time), on the IUE LBL archive, to get a feeling of what day-to-day de-archival operations on the HST archive will look like.

Acknowledgements

The HST archive system has been designed and implemented in close collaboration among STScI, ST-ECF, ESO and, more recently, CADC; all of the staff at these sites participating in this effort are herewith acknowledged. In particular, we would like to mention Leslie Hunt and Sergio Restaino, who have contributed to this project at the ST-ECF.



A new IHAP User's Manual, version April 1990, is available:

- the command description is alphabetically ordered
- it contains all updates since March 1985
- more introductions are given
- reduction methods for 2-D spectra are described
- the manual was revised by M. Véron (OHP), D. Baade, P. Grosbol (ESO) and others.

The technical details of IHAP are described in a new IHAP "Engineering Manual". Please contact Ch. Euler for these new manuals.

IHAP is mostly used at La Silla where HP/1000 computers control telescopes (including the NTT), instruments and detectors.

P. Biereichel

MIDAS Memo

ESO Image Processing Group

1. Application Developments

Since December 1989 the Portable MIDAS has finally become the default version within ESO on the VAX/VMS machines. This led to a heavy workload of fixing bugs and ironing out problems all over the system. We now have a much more stable system and many minor improvements and additions have been included. No major new applications have been added in the meantime, except some new algorithms in the LONGSLIT package.

2. System Developments

Most UNIX workstations running MIDAS do not have their own tape unit but must share a common network tape station. A remote tape server task is now available for UNIX systems using TCP/IP protocols. When installed, it enables the tape commands in MIDAS to access a remote drive as if it were a local device. The interprocess communication interfaces have been rewritten and now use sockets instead of pipes. Therefore, they should be more portable and work also on pure BSD machines, e.g. Alliant.

3. Better Support of DECwindows Under VMS

The portable MIDAS is supported on both VAX/VMS and UNIX systems. To ensure full compatibility of MIDAS with the latest release of VAX/VMS, a VAX station 3100 running VAX/VMS was purchased by the Image Processing Group. This system will be kept updated with respect to the VMS operating system and the DECwindow X11 based display manager. New releases of MIDAS will be verified on this VAX station and thereby certify them for the full range of VAX/VMS systems. The IDI server (the programme which manages the MIDAS windows) used to be run as a batch job. That created problems for distributed systems with a single generic batch queue. Now the IDI server is spawned as a separate process (which also speeds up execution).

4. Change of MIDAS Release Cycle

The release cycle of MIDAS has been modified to ensure greater stability and reliability in the future. The internal development version of MIDAS (i.e. new) is frozen every second month. The last frozen version before a release will be tested both internally and at a number of external beta-test sites. The actual

MIDAS release will be based on this frozen version correcting major problems found during the beta-tests. This procedure is expected to give several advantages, namely: (a) installation procedures will be checked independently thereby making it possible to clarify the documentation, (b) problems in special applications can be reported in the release notes and help files, and (c) updates of the MIDAS Users Guide can be collated earlier and made available much closer to the actual release data than is now possible.

5. IEEE Floating Point Format in FITS

The original FITS agreement specified 8-, 16- and 32-bit integers as the only data formats. All integer formats are limited by an absolute error, whereas floating point formats can span a much wider numeric range with only a relative error. With the increased dynamic range of astronomical data, most image processing systems now process data in floating point format. To avoid time consuming conversions to and from integers and possible loss of accuracy, the FITS committee proposed the inclusion of the IEEE-754 32- and 64-bit floating point formats in the allowed FITS data types. This proposal was accepted as a standard by the IAU FITS Working Group after a formal vote in December 1989. Thus, the use of IEEE floating point numbers in the FITS data matrix is valid as of January 1, 1990.

The MIDAS intape/outtape commands have been upgraded to accept IEEE floating point data in FITS files (available from the 90 MAY release). Since it will take some time before all FITS readers in the community are updated, MIDAS will still default to write FITS tapes in the original integer format until the 90 NOV release.

6. MIDAS Hot-Line Service

The following MIDAS support services can be used to obtain help quickly when problems arise:

- EARN: MIDAS@DGAESO51
- SPAN: ESOMC1::MIDAS
- Tlx.: 528 282 22 eso d, attn.: MIDAS HOT-LINE
- Tel.: +49-89-32006-456

Users are also invited to send us any suggestions or comments. Although we do provide a telephone service we ask users to use it only in urgent cases. To make it easier for us to process the requests properly we ask you, when possible, to submit requests in written form through either electronic networks or telex.

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