

ground-based observations, that is the average seeing and airmass at the time of the observations.

## Conclusion

Even at this early stage of implementation, the EFOSC2 simulator appears as a useful tool to plan and optimize the observations at the NTT. In addition to the planned extension to EMMI, the programme could be easily extended to other, similar instruments by modifying the initial parameters. This can be done using a simple MIDAS procedure to write the desired values in the corresponding MIDAS keywords. The integration into the MIDAS environment makes it possible to display, edit, and print easily the characteristics of the different components which enter in the computation. If this updating is done in a systematic way, the programme will also provide on line an accurate description of the status of a given instrument. One can envisage that in the future potential users will check by a remote login whether the actual status of the instrument corresponds to the version recorded on their local workstation, introduce the upgraded parameters, if any, and then go on with the planning of their observing programme.

It is of course clear that the results of these first simulations need to be systematically compared with the output of real observations to refine the model. This interactive process will start when the first data with EFOSC2 will become available. As the model will become rel-

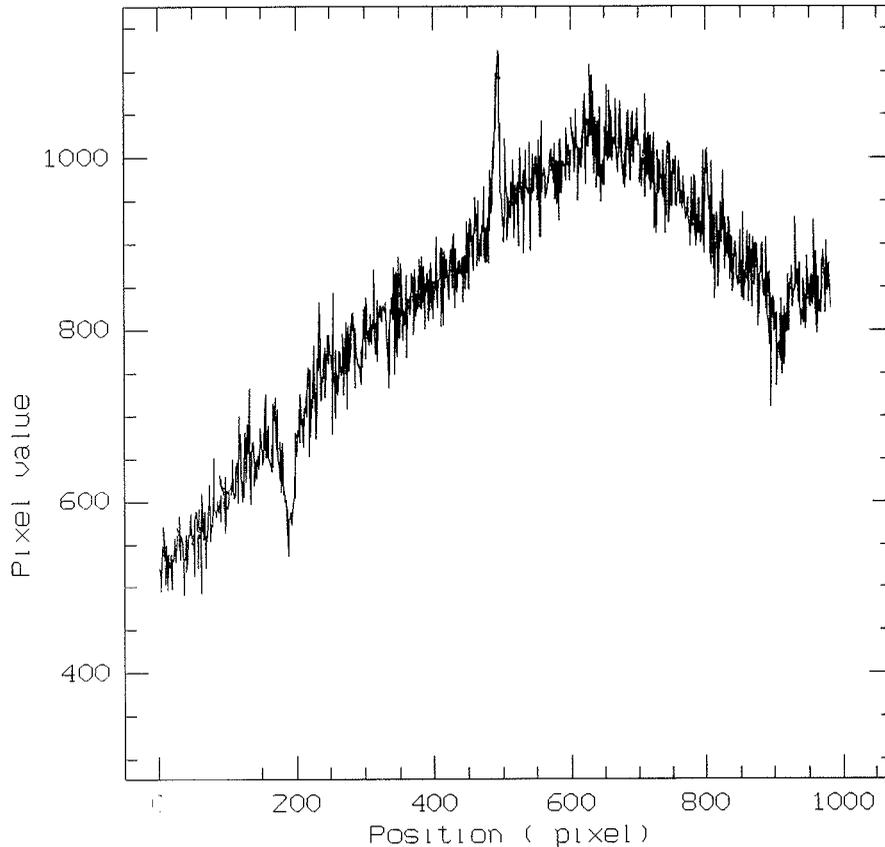


Figure 2: A simulated spectrum of an A5 star of  $m(v) = 20$  obtained in 1 hr exposure with EFOSC2 and grism # 4, which gives on the detector (a  $1024 \times 1024$  CCD with  $19 \mu$  pixels) the wavelength range 4100–7200 Å. The seeing was assumed 0.5 arcsec (FWHM). The slit width was also 0.5 arcsec. The various sources of noise and the sky spectrum have been added to the stellar continuum.

atively stable and the results fully reliable, one could also think to use the quantitative information that it provides

into the programmes which in the not-too-far future will optimize the use of the telescope by flexible scheduling.

# MIDAS Memo

## ESO Image Processing Group

### 1. Application Developments

The FIT package is now available in the portable MIDAS for both VMS and UNIX systems. It was upgraded in a number of areas. Some deficiencies of the old VMS version were corrected, in particular the methods applied to problems with constraints. The implementation is still using some NAG library routines.

A new context LONG has been implemented for the reduction of Long-Slit spectra. This first version provides only basic tools for calibration and analysis. It is planned to perform major upgrades for the spectral packages e.g. ECHELLE and LONG when the final archive tape format has been implemented as output format from instruments. This will en-

able a much more automated reduction sequence than is possible today.

A new context STATIST has been developed for statistical tests on tables. This includes specifically the comparison of empirical distribution with theoretical distribution, the comparison of independent data samples, the measurement of correlation. The Multivariate Analysis package (previously named STATIST) has been renamed to MVA.

In the stellar photometry package ROMAFOT, a major part of the code has been rewritten in order to integrate the software completely within MIDAS environment. In the new version the various file extensions for the different intermediate files (e.g. .Q, .F, .R) are no longer used: ROMAFOT now uses exclusively the MIDAS table file system for storing intermediate and final results. Obviously, with the introduction of the MIDAS tables in the ROMAFOT pack-

age the user is offered greater flexibility since MIDAS commands can now be used to manage the (intermediate) results.

The display parts of the new version of ROMAFOT are either directly based on the Image Display Interfaces or have been rewritten in the MIDAS Command Language (MCL). Hence, ROMAFOT can be used on all systems (VMS and UNIX) with display devices supported by MIDAS. For workstations this implies that an implementation of the X11 windowing software should be available.

### 2. System Development: Astronet Graphic Library

A new version of the AGL software has been completed. Besides several small improvements, a major effort has been made to improve the management of the graphic window on workstations.

Whereas in the previous implementation of AGL the graphics display in MIDAS was controlled by a separate server, in the new version the graphic display and the image display use a common server. This possibility became available by building an additional IDI driver. As a positive side effect the interaction of the user with the graphics window using mouse and keyboard will now be identical to the interaction with the display window. The new driver will also open possibilities to integrate the graphics and display software more on the level of application software. The new IDI driver for AGL was written by L. Fini during his two weeks at ESO in the autumn. We would like to thank him for this effort.

With the introduction of the IDI driver, installation of AGL for MIDAS graphics is now possible on all workstations supporting X11. Since, for the graphics window MIDAS will only use the IDI driver, all the different server options for the various workstation models are no longer needed. Therefore, we have decided to strip the AGL distribution kit of the parts not used by MIDAS and to integrate the stripped version into the MIDAS directory structure. As a result of this, starting from the 89NOV release of MIDAS a separate implementation of the graphics software will not be needed. The complete distribution kit of AGL, if one wants AGL as a stand alone package, is available from the Italian Astronet Group.

### 3. MIDAS Support for GNU Software

MIDAS has been ported to the GNU C-compiler and will now compile without warnings under both UNIX and VMS. This is the first strict ANSI C compiler under which MIDAS has been thoroughly tested and we do not expect problems with other ANSI C compilers.

The major advantage of the GNU C-compiler is that it's free. It was developed by the GNU project which aims to provide high quality UNIX system software free of charge. The final goal is to provide a full implementation of UNIX with all utilities for any 32-bit machine. The man behind the GNU project is Richard Stallman, a former MIT AI-expert, who wants to promote software sharing between programmers and fight against the restriction placed on software preventing others from using it without paying. Other software available from the GNU project today is the 'emacs' editor, a source-level debugger and numerous utilities in beta-release.

In addition, the GNU C-compiler ('gcc') is fast and produces good code. We have made some rudimentary tests on our main development machines,

Sun SPARC-stations and a VAX 8600 running VMS, and have found some interesting results. On the Sun, 'gcc' is virtually as fast as 'cc' when compiling without optimization, but twice as fast when compiling with optimization. The code produced is virtually the same quality, both in terms of code size and execution time. Under VMS, only the execution time of the code produced by 'gcc' has been tested and found to be slightly worse, say 10–20%, than the code produced by the VAX11 C-compiler. For MIDAS, however, this is not a major concern since most of the CPU intensive code is written in FORTRAN 77.

The MIDAS developing team encourages the use of the GNU 'emacs' editor, since it, unlike 'vi' and EDT (and derivatives), runs under both UNIX and VMS and also can emulate both 'vi' and EDT.

How do I get GNU software? The software is available in tar-tape format with anonymous 'ftp' from several sources on the Internet. The latest versions are available from 'pre.ai.mit.edu'. Both tar-tapes and VMS backup tapes are available from 'Free Software Foundation' (address below). They take a nominal distribution fee and only accept orders with payment. However, since the software may be distributed freely, you may acquire it from any source where you may have heard that the software is being installed. The computer science department of your local university may be worth a try. Note that the GNU C-compiler cannot be compiled by the VAX11 C-compiler, so the VMS version

must be obtained in compiled form from a VMS source.

Free Software Foundation  
675 Massachusetts Avenue  
Cambridge, MA 02139  
USA

### 4. Personnel

The Image Processing Group deeply regrets to announce that Daniel Ponz has left the Group to take up a position in ESA. Daniel participated very actively in the MIDAS project from its start in 1981 and developed since then many important packages such as the Table File system and most major spectral reduction packages. We wish him all the best in his new position and will try to minimize the effects for MIDAS of this significant loss.

### 5. 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.: 52828222 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.

## Manuel Cartes V. (1952–1989)

The departure of Manuel Cartes on September 19th was received with a profound impact at La Silla. Manuel was highly esteemed and appreciated as a colleague and a friend.

He first came to La Silla as a summer student in 1976 and 1977 before joining the ESO staff as a graduated electronics engineer in 1978. Within the electronics section he demonstrated a great enthusiasm and a first rate dedication to his work. He personified a style of commitment which proved to be the base of a successful technical operation. Often Manuel could be seen late at night at the telescopes ready to assist, sparing neither time nor efforts.

In 1982 he went to Europe with the challenge to interface the MPI 2.2-m telescope controls to our environment. It is largely thanks to him that the 2.2-m telescope electronics could be brought in line with our maintenance facilities.

In 1987 he was assigned to the NTT project and started his involvement in Garching. Then came a terrible sickness. At La Silla we had to witness his courageous fight to face this sickness which would eventually overcome his will.

We wish to assure his wife Sylvia, his sons Manuel and Patricio that the memory of his kindness, dedication and friendship will never leave our observatory.