integration of the electronics and optics. The assembly of the instrument is now scheduled for November of this year. The La Silla staff will also adapt the EFOSC1 software to the NTT computer environment. This remarkable effort made possible the introduction of the project in the ESO planning without major disruptions of the projects already on their way in Garching.

Let us now briefly look at the capabilities of EFOSC2. There are two major improvements with respect to EFOSC1: the optically corrected field is about 30 × 30 mm at the detector and the UV transmission of the optics is expected to be significantly better (about 70 % at 3600 Å vs 35 % for EFOSC1). At the CCD, one arcsecond corresponds to 113 μm at the NTT and to 52 μm at the 2.2 m.

Note that because of the optimization for the 2.2 m, EFOSC2 tends to oversample the stellar images (or the slit) at the NTT in average seeing conditions. The actual performance will depend on the detector which will eventually be used. At present we consider three possibilities: a high density RCA (1,024 × 640 pixels, 15 × 15 μm in size), a mosaic of four Thomson CCDs (1,160 × 80 pixels, 23 × 23 μm) and a Thomson THX 31156 (1,024 × 1,024 pixels, 19 × 19 μm). The table summarizes the pixel matching and the available fields for the three detectors. Of these, the RCA CCD is the only one with well tested properties as it is used currently at EFOSC1. The other two are still in the development phase and their performance "in the field" will be known by the beginning of 1989 only.

Pixel Matchings and Fields of View of EFOSC2

	Detector	Pixel size (arcsec)	Field of view (min of arc)
At the NTT			
	HR RCA (2 × 2 binned)	0.26	2.2 × 1.4
	Mosaic 2 × 2	0.20	3.9 × 2.7
	THX 31156	0.17	2.9 × 2.9
At the 2.2 m			
	HR RCA	0.29	4.9 × 3.1
	Mosaic 2 × 2	0.44	8.4 × 5.7
	TH 31156	0.36	6.2 × 6.2

Finally, a few words on the schedule of these projects. It is foreseen to mount EFOSC2 at the NTT in the spring of 1989 and in July of the same year it should become available to visitors for a fraction of the time.

Applicants for observing time in period 43 with EFOSC1 at the 3.6 m will be asked to indicate whether they would consider acceptable to carry out their scientific programme or part of it with EFOSC2. This will leave open to the OPC the possibility to divert a fraction of the programmes to that instrument, thus relieving the present oversubscription rate of the 3.6-m telescope. EMMI and IRSPEC (the latter to be adapted to the other Nasmyth focus of the NTT) are expected to be offered in period 44. When EMMI will be operational, EFOSC2 will be moved to the 2.2 m, where it should be available from period 45. *S. D'ODORICO, ESO*

A Note on Equivalent Widths at the CES

It has come to my attention through my own observation and through discussions with other users of the CES, that there are substantial differences between the equivalent widths measured with the short camera plus CCD and those measured with the long camera plus Reticon. These differences are in the sense that the CCD widths are larger than for the Reticon. These differences appear to be wavelength dependent being larger in the blue and can be as large as 20–30 % around 3880 Å.

Although this is at first sight disturbing, it appears that programmes which compare equivalent widths in the same spectral region have no worries since both detectors have linear output. This is probably due to scattered light in the long camera, but this is not yet proved.

I am interested in further investigating this effect especially with a comparison of data taken with the long camera and both detectors, and in the blue and red regions of the spectrum. Thus I would like to request that CES users send me any information that will help track down the origin of this problem affecting our data. *P. CRANE, ESO*

MIDAS Memo

ESO Image Processing Group

1. Application Developments

A new package for reduction of data from the ESO Infrared Spectrograph, IRSPEC, has been developed in collaboration with M. Tapia. The package is described in more detail in a contribution of this issue of The Messenger. The new software, available as a CONTEXT inside MIDAS, includes a tutorial procedure that can be used as an on-line manual for first time users and also as a test for certifying new installations. This software and the corresponding manual will be released with the 88NOV version of MIDAS!

The package CLOUD, used for the analysis and modelling of interstellar absorption lines, has been substantially upgraded by M. Pierre.

A new project to organize and define the calibration information inside MIDAS has been started in collaboration with L. Johansson.

With the completion of the reduction software for IRSPEC, the first priority project in the area of applications is now the support of EFOSC in its different modes.

2. MIDAS Workshop

The MIDAS Workshop on April 28, 1988, was attended by approximately 70 people, 50 of whom came from other institutes. The morning was reserved for presentations of the general status of MIDAS and new applications such as the IRSPEC package. J. Nichols-Bohlin from the IUE project at NASA, Goddard Space Flight Center, presented the implementation of the IUESIPS package in a MIDAS environment which is now used for the production calibrations.

The standard Image Display Interfaces were described briefly with a more detailed discussion of the first IDI implementation for X-window systems made in Trieste Observatory.

The afternoon was devoted to the portable MIDAS. The new portable set of Standard and Table interfaces was reviewd. These new interfaces represent an enhanced version of the old ST and TBL routines which will still be supported for VAX/VMS systems.

The version 3.0 of AGL, used for plotting in the portable MIDAS, was presented by L. Fini from ASTRONET. Further, the increased capabilities of the plotting package available in the portable MIDAS was demonstrated with a new plotting tutorial. Finally, an extensive set of tests and benchmarks on work-stations from 12 vendors was discussed.

MIDAS courses were discussed again and a decision made to try and arrange these once the portable MIDAS has been released.

3. New Release Dates for MIDAS

With the growing number of institutes now receiving MIDAS (more than 80 sites), our workload is increasing with each release and the summer release is causing problems due to the vacation period. It has therefore been decided to change the MIDAS release dates to May 1st and November 1st. Thus, the next release will be made November 1st, 1988, and be named 88NOV. A first version of the portable MIDAS will be offered at this release. The present VAX/VMS version of MIDAS with minor updates will also be made available to sites which e.g. at that time have not updated their IDI routines to the final standard used in the portable MIDAS.

4. Portable MIDAS

The basic tests of the portable version of MIDAS have been completed successfully by implementing and benchmarking the system on more than 18 different computer models from 12 vendors. These vendors include : HP, Apollo-Domain, SUN, Bull, Tektronix, Masscomp, Alliant, IBM, DEC, Prime, PCS and Eltec. The very high degree of portability was demonstrated by the easy installation of MIDAS on all these systems representing 13 different operating systems (VAX/VMS and 12 UNIX-like systems from pure BSD to SYS V), 5 RISC CPU's and 3 CISC processors. For a typical system, the full installation, testing and benchmarking were performed in less that two working days.

These tests have fully proven the design and portability concept of MIDAS. The main task is now to migrate and test the application programmes with the portable MIDAS. At this stage, the table and plotting applications have been redesigned and implemented in the portable version of MIDAS. This part includes about 40 commands now running in the VMS and UNIX environments. It is expected that a major part of the applications will be available before the 88NOV release.

5. MIDAS Hot-Line Service

The following MIDAS Support services can be used in case of problems to obtain fast help:

- EARN: MIDAS@DGAESO51
- SPAN: ESOMC1::MIDAS
- Tlx.: 52828222 eso d, attn.: MIDAS HOT-LINE
- Tel.: +49-89-32006-456

Also, users are invited to send us any suggestions or comments. Although a telephone service is provided it should be used in urgent cases only. We prefer that requests are submitted in written form through either electronic networks or telex. This makes it easier for us to process the requests properly.

IRSPEC Spectra Reduced within MIDAS

D. PONZ, M. TAPIA, ESO*

1. Introduction

The ESO 32-channel infrared (1–5 μm) grating spectrometer, IRSPEC, was put into operation and made available for Visiting Astronomers in October 1986. In this contribution we describe the reduction scheme implemented in MIDAS to process IRSPEC data taken in any of the two – discrete or continuous – instrumental modes. The Instrument itself has already been described in detail in another contribution to the *Messenger* (ref. 1).

The main purpose of this package is to provide the tools for converting the raw data counts into spectral flux, calibrated in wavelengths. The design of the reduction method is very flexible, in the sense that the user can process the data in different ways, using the basic tools provided by MIDAS, according to his/her own preferences. One important point in the design is to allow for the propagation of errors when an arithmetic operation is performed between two spectra and, of course, the ability to display and plot the error bars. This may be important as the present range of spectral resolutions available in IRSPEC is such that the intrinsic noise level of a measurement may not be well represented by the average pixel to pixel variations in the final spectra. Plotting the final error bars will, for example, tell the observer whether the main source of noise was introduced by bad cancellation of telluric absorption features or detector noise.

All the intermediate data are stored in tabular format. The calibrated flux can then be converted into a one-dimensional image, so that it is possible to use the spectral analysis facilities already available in the system to compute line intensities, equivalent widths, central wavelengths, etc.

2. The Reduction Steps

Spectra obtained with IRSPEC are read from magnetic tapes written in FITS format. Therefore, if a visiting astronomer anticipates reducing these data using MIDAS, he/she should request the computing centre at La Silla to write his/her magnetic tapes in FITS format. Otherwise, the IHAP tapes can be copied into FITS format before reduc-

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