

MIDAS Memo

ESO Image Processing Group

1. Application Developments

The plotting facilities have been upgraded with many new features such as negative increments on axes and overplot of error bars. The INTAPE/FITS command was updated so that it now reads blocked FITS tapes according to the agreement of the FITS committees i.e. a physical blocking factor of up to 10 is allowed. The Dicomed commands have been upgraded to allow for spooling of the output files. That means the B/W and colour mode can be used simultaneously at ESO/Garching.

The FILTER/SMOOTH command now employs an algorithm which is nearly independent of the window size. A boxcar filtering of 1024 * 1024 image with a 15 * 15 window takes now 13 sec CPU-time versus 211 sec CPU-time before (these are VAX 8600 times, approximately 2.3 times faster than a VAX 11/785). The FFT routines were modified to get rid of the excessive paging observed with large images. For a 1024 * 1024 image the FFT needs now 54,000 page faults (with a working set size of 1024 pages) and 6 : 30 min CPU-time (VAX 8600).

It is now possible to run several parallel MIDAS sessions from the same disk directory by using the MIDAS login command INMIDAS PARALLEL. The DEFINE/Parameter was added for definition of parameters in MIDAS procedure files. This command replaces the commands DEFAULTS, TYPES and LIMIT which have been removed. NOTE: if you have used any of these commands they must be substituted by the DEFINE/PARAMETER.

2. Support of MIDAS at External Sites

The MIDAS system has now been exported to a large number of external sites (i.e. more than 40 sites on 3 continents). In order to give these sites a first class support, a new MIDAS Hot-line service will be started from April 1, 1987.

This service will provide an answer to MIDAS related questions received through either Telex no. 528 282 22 eo d (attn.: MIDAS HOT-LINE) or electronic mail (SPAN: 'ESOMC1:MIDAS' or EARN/BITNET: 'MIDAS@DGAESO51'). Requests and questions received before noon will be answered not later than the next normal working day.

In addition, a special telephone no. +49-89-320-60-456 will be created for general MIDAS questions and prob-

lems. This extension will be connected to the MIDAS support person on duty.

3. MIDAS Workshop

The next Data Analysis Workshop, arranged by the ST-ECF, will take place in Garching in the week of May 4-8, 1987. The very positive response to the introduction of a MIDAS Workshop has meant that it will be continued. It will again be arranged just after the Data Analysis Workshop on May 7, 1987. The programme will include sessions on general developments, new applications and the status of the portable MIDAS version in addition to a MIDAS Users meeting. A tentative agenda will be sent out together with other material for the Data Analysis Workshop. People interested in participating in the Workshop should contact either the Image Processing Group or ST-ECF.

4. Measuring Machines

The mechanical and optical modification of the OPTRONICS measuring

machine took place as planned during May 1986. The machine has since been used for manual measurements of stellar positions with the old HP 1000 system. Due to problems in the electronics for reading the diode array and delay in the software developments, it has unfortunately not been possible to offer the scanning mode yet. Most of the problems have now been solved and it is hoped that the implementation of the diode array can continue without further delays. With the present time table, it should be possible to scan limited areas of plates on the OPTRONICS this fall.

The usage of the Grant measuring machine has been less than 50 hours over the past year. We regard this to be a result of the very few coude plates taken during the last years and thus a continuing trend. It is therefore under consideration to discontinue the operation of the GRANT machine if the usage does not increase significantly. People who would like to use it for measurements of coude and image tube spectra are kindly asked to do so.

New CCD Control Camera and First Test of a TEK 512 CCD at La Silla

At the beginning of February 1987 a new CCD control camera has been successfully installed at the 3.6-m telescope by R. Reiß and P. Sinclair. It will be used with all of the CCD-based instruments like CASPEC, EFOSC and the

B & C spectrograph. The camera is a so-called generation V system from Princeton Scientific Instrument. It has been interfaced to the standard ESO computer in Garching in such a way that the observers will not detect any differ-

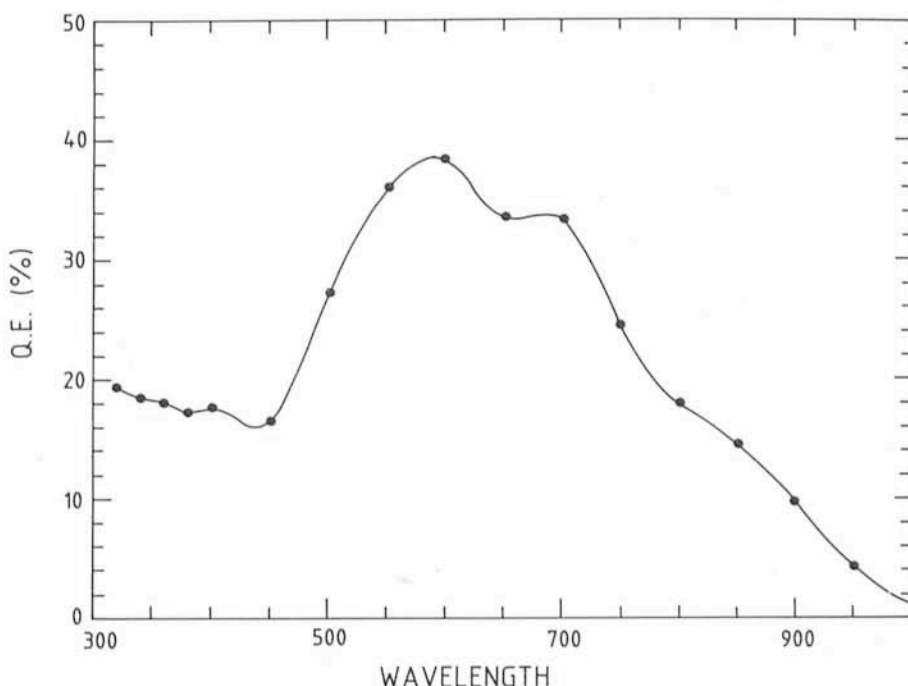


Figure 1: The quantum efficiency curve of the thick TEK 512M-11 device measured in the ESO detector lab after coating.

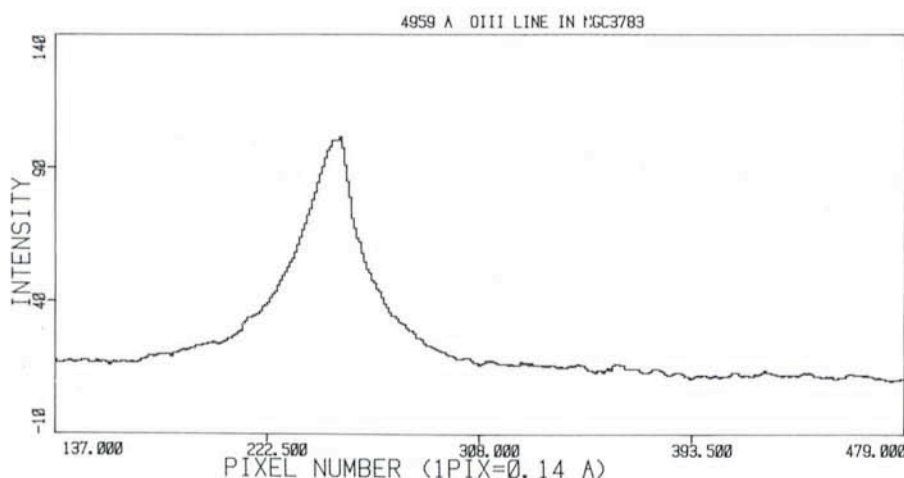
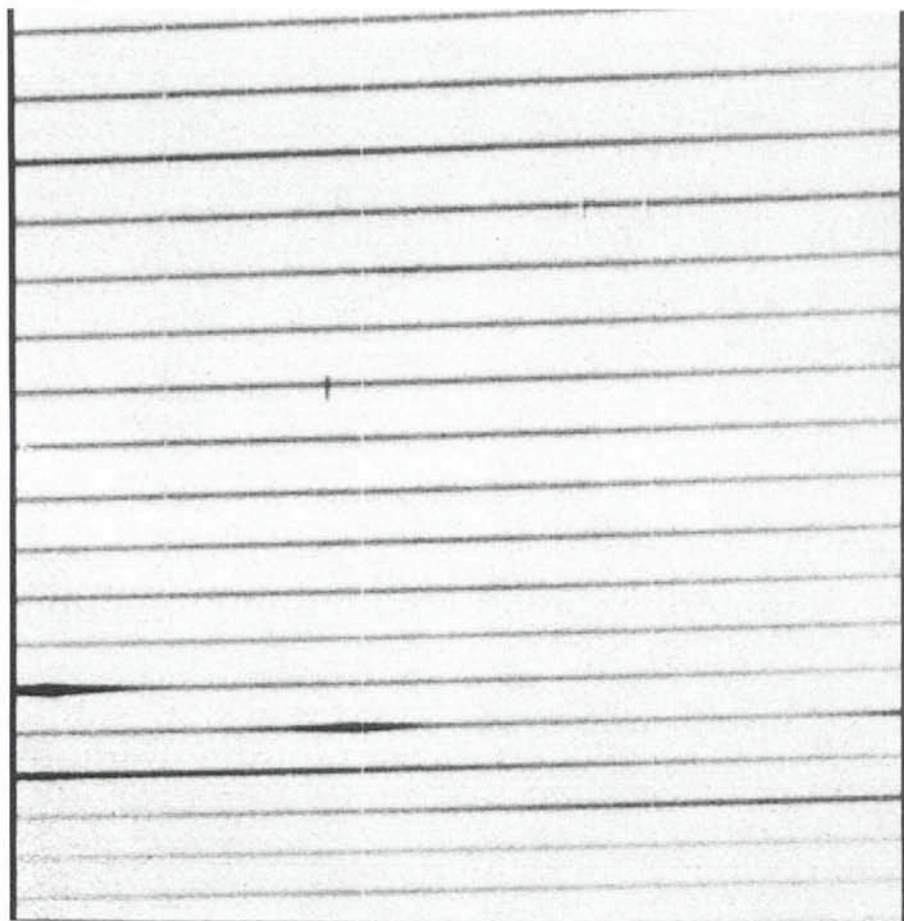


Figure 2: (a) An echelle spectrum of the Seyfert galaxy NGC 3783 centred at λ 5500 Å, obtained with CASPEC and the front illuminated TEK 512 CCD. The orders in the lower part of the frame show the broad H β and the [OIII] emission lines. The Galactic absorption lines of Na I are seen close to the corresponding emission from the night sky in the fourth order from the top. Average of two 1-hour exposures cleaned of the radiation events.

(b) The profile of the λ 4959 Å emission line of [OIII] from one order of the echelle spectrum of the galaxy. X coordinates are the CCD pixels, corresponding to 0.14 Å. The resolution is 0.25 Å.

ence in the control programme of the instruments. Notable advantages with respect to the previous system come from the use of electronic components of improved quality, such as the on-chip amplifiers and high speed 16-bit converters, shorter read-out time and a simplified procedure in the set-up of different CCD types.

The new system operated without problems from the first night of installation. When used with the ESO CCD #3 on CASPEC, it resulted in an improvement of the read-out noise of about 20 % (present value: 35 e⁻), a not negligible advantage in the observations of faint objects. The implementation of this new system has freed a CCD control

camera that most likely will be installed at the ESO 1.52-m spectrograph by the middle of this year.

In the same test period, we have also used a front-illuminated TEK 512 M-11 CCD on CASPEC. It has 512 × 512 square pixels 27 μ m in size or the largest collecting areas ever as it goes for CCDs at La Silla. The chip had been coated in the detector laboratory at ESO Garching to enhance the UV-blue sensitivity. The quantum efficiency measured after the coating is shown in Figure 1. In this CCD the low noise on-chip amplifier was damaged and we had to switch to the C-amplifier and the C-output shift register. This is probably the cause of a read-out noise of 30 e⁻/pix, a value definitely higher than one would expect. Given this value and the relatively low quantum efficiency, this particular device is not better than the CCDs now in operation at La Silla and for the time being is not offered to visitors. Cosmetic and charge transfer efficiency however are quite good (see Fig. 2) and would make this device quite useful on some ESO instruments if operating with a r.o.n. of the order of 10 e⁻. The radiation event frequency is 1.4 events/minute, cm² or a factor of four lower than in RCA CCDs.

S. D'Odorico

STAFF MOVEMENTS

Arrivals

Europe:

FRANÇOIS, Patrick (F), Fellow
MEURS, Evert (NL), Fellow
RICHIHI, Andrea (I), Student

Chile:

BOOTH, Roy (GB), Associate

Departures

Europe:

SCHARRER, Rebekka (D), Laboratory Technician (Photography)

New Staff Association Committee in Garching

Elections for the renewal of the Staff Association Committee were held in Garching in January. As a result Fons Maaswinkel, Lothar Noethe and Gianni Raffi were elected.

Many thanks to Anton van Dijsseldonk and Claus Madsen, who terminated their duty, while L. Noethe is the chairman of the newly appointed Committee.

The present Staff Association Committee in La Silla is composed of Gaetano Andreoni, John van den Brenk (chairman) and Michel Maugis.