

the LMC, the light of which could be amplified by microlensing when passing close to small and massive halo objects, such as jupiters, brown dwarfs, or small black holes. The ESO Schmidt telescope is used to search for deflectors with masses in the range  $10^{-1} - 10^{-4}$  solar masses; a companion programme, using an assembly of CCD detectors, is aimed at the detection of masses in the  $10^{-4} - 10^{-6}$  solar masses range. In the galactic domain, we can also mention stellar-population studies and star counts.

In the extragalactic field, direct and objective-prism plates from the La Silla Schmidt telescope are, among others, used to detect and study galaxies with bursts of star formation. This will be the topic of a paper by G. Comte (Observatoire de Marseille) in a forthcoming issue of *The Messenger*, and is illustrated by two photographs accompanying this presentation. The first concerns a direct double U-R exposure; the second reproduces part of an objective-prism plate.

In planetology, we can mention, among others, the study of Neptune's arc rings through accurate trajectography of the planet and Triton, performed on Schmidt plates from La Silla.

Glass copies of both ESO-R and SERC-J surveys are available in the plate vault: they are extensively used for preparing observations with the La Silla instruments, as well as for the identification, astrometry and photometry of optical counterparts of sources detected at other wavelengths: radio, X, infrared. In particular, MAMA is being used for identification and photometry of faint IRAS extragalactic sources.

We have given some examples of the invaluable role of photographic material taken at different epochs in studies of proper motions as well as variability in solar, galactic and extragalactic astronomy. In addition, ground-based and space observations at various wavelengths require and will continue to require wide-field complementary investigations.

The TYCHO catalogue will contain about one million stars known to a few hundredths of a second of arc and a few hundredths of a magnitude. This will result in significant improvement of the calibration of Schmidt plates which are expected to remain, for a long time, irreplaceable supports for wide-field information.

### References

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Access to MAMA: MAMA is available for visitor use.

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## MIDAS Memo

### ESO Image Processing Group

#### 1. Application Developments

The Echelle package has been further upgraded with instrument independent wavelength calibration and better background correction.

Peter Stetson has implemented a new version of DAOPHOT during a visit to ESO in April. This version reads the image data directly from the MIDAS .bdf files. An interface between DAOPHOT and MIDAS enables exchange of the table data between the two systems and thereby makes DAOPHOT available for MIDAS users. The DAOPHOT package and the interface are not on the standard release tape of the 91MAY version but can be obtained on explicit request to ESO.

A set of adaptive filters based on the Haar transform was installed in MIDAS by Gotthard Richter. These filters are especially useful for surface photometry applications since they smooth selectively areas depending on the local gradient. They are available in the 91MAY release of MIDAS.

#### 2. ESO-MIDAS Courier

The Image Processing Group will start a biannual newsletter on MIDAS-related matters. It is called the ESO-MIDAS Courier and is edited by Rein Warmels. It will contain significantly more detailed information than has been possible in the MIDAS Memo. Contributions to the Courier can be sent to the MIDAS E-mail address, attn.: MIDAS Courier.

#### 3. Data Analysis Workshop

The 3<sup>rd</sup> annual ESO/ST-ECF Data Analysis Workshop took place April 22-24 in the ESO Headquarters. It consisted of 1½ day scientific meeting centred on reduction software for direct image data followed by one day with users' meetings for both MIDAS and ST-ECF. Approximately 90 people participated in the meeting where more than

### Central Computer Facilities of ESO

The central computers of ESO, which now consist of a cluster of two VAX 8600 systems running the VAX/VMS operating system, will be replaced during the fall of 1991. The new systems will use the UNIX operating system and support the X11 window system. A small VAX/VMS system will be purchased to ensure compatibility with external sites using VAX/VMS systems. UNIX workstations are expected to replace the DeAnza image display systems now connected to the VAX's.

The electronic network connections to SPAN, Internet, BITNET/EARN and UUCP will be maintained whereas the VMS/PSI-mail option will be discontinued. Direct access to ESO through X.25 and modems will still be possible. After the exchange of computer systems, it is expected that electronic News, Bulletin Boards and anonymous ftp accounts will be made available to facilitate easy information exchange between ESO and its user community.

P. GROSBØL, ESO