First Observing Run with DISCO was Successful

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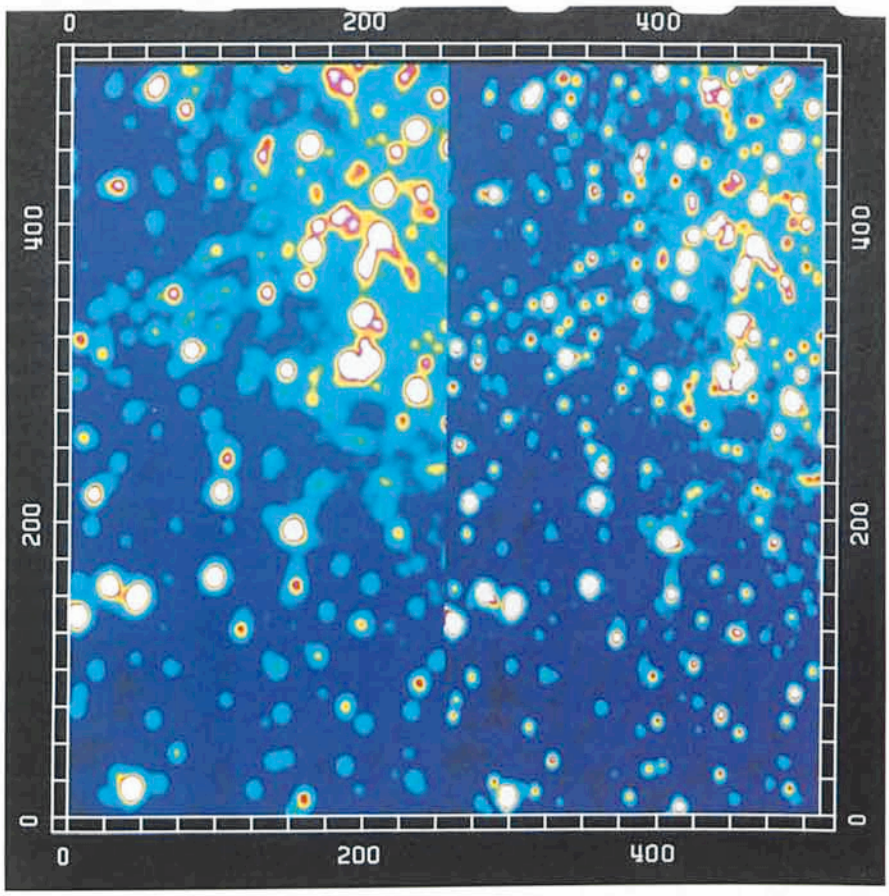
The Direct Image Stabilized Camera Option DISCO was tested for the first time from 29 November to 5 December at the 2.2-m telescope with a CCD camera. The instrument was described in *Messenger* **48,** p. 51. It comprises a new adapter for the 2.2-m telescope with a newly designed XYZ offset guider. It offers the possibility to observe at the conventional f/8 focus, or alternatively at an f/20 focus. In the latter mode it is possible to correct the motion of the astronomical image 50 times per second. DISCO was mounted at the telescope with the precious support of the TRS group and operated without problems from the first night. The aim of the run was in particular the test of the image correction system (fast tilting mirror, ICCD camera, VME based microprocessor). As had been expected, the system gave only minor improvement in mediocre seeing conditions; during very good seeing, however, it provided a rather impressive image improvement. As an illustration, Figure 1 shows a comparison of two exposures of 47 Tuc made *without* (left picture) and *with* (right picture) image stabilization. The exposure time was 45 sec for both and a red gunn filter (λ_c = 668 nm) was used. The stellar image diameters without stabilization were 1.″2 FWHM, with stabilization 0.″9 was achieved. Thanks to the superior light concentration the stabilized image reveals more details and reaches fainter magnitudes. During part of a night the seeing was so good



that it was possible to improve the FWHM of the stellar images in long integrations from 0.″85 (non-stabilized) to 0.″66 (stabilized). The possibility to switch remotely in a few minutes from the f/8 to the f/20 mode was found particularly useful, as the seeing was observed to change on a rather short timescale (~ 1 hour).

A more detailed report on this test will be given at the Very Large Telescope Conference at ESO in March.

New Operational Limits for 1.5-m Danish Telescope

A 14.5 cm thick spacer ring has been installed between the mirror cell and the instrument adapter. Its purpose is to eliminate residual spherical aberration. Recently analysed Schack-Hartman tests have shown the correction to be complete.

The longer focal length of the telescope has changed the focal plane scale from 16.07 to 15.83 +/– 0.02 arcsec/mm.

Unfortunately, the extra length below the mirror cell implies restrictions for the use of certain pieces of auxiliary equipment, in addition to those described in ESO Users Manual No. 3 "Danish 1.5-m telescope and Auxiliary equipment", pages 4–7. Observers are urged to take these into account, when planning their programme.

As the telescope can be used either west or east of the base, there are two sets of limits; they are however symmetric. Telescope operation west of the base has the advantage that tracking (but not presetting) can be done into part of the "danger" zone; the observer may override a first warning signal.

The inaccessible corner for the CCD camera is h.a. $> +01:10$, decl. < -47 (telescope west) and h.a. $< -01:10$, decl. < -47 (telescope east). In the west position, tracking is allowed to decl. -53, for h.a. $> +01:10$. It is not feasible to reverse the telescope during the night, as the CCD electronics would have to be disconnected.

For Coravel, the corner is at h.a. $> +00:10$, decl. < -43 (west) and h.a. $< -00:10$, decl. < -43 (east). These limits appear more restrictive than those mentioned above. However, the control cable for the Coravel permits the observer to reverse the telescope at night. Objects which are inaccessible from one side of the base, can therefore be observed from the other.

A two-channel and a six-channel photometer have limits which are rather similar to those of the CCD camera, and telescope reversal is possible.

Mr. P. Nørregaard, Brorfelde, has reprogrammed the microprocessor-based safety-system so that physical collisions between telescope base and auxiliary equipment remain impossible.

H. Pedersen, ESO

MIDAS Memo

ESO Image Processing Group

1. Application Developments

An extended CCD reduction package made by S. Jörsäter, Stockholm Observatory, has been implemented in MIDAS. This package includes tools for standard reductions of CCD frames such as dark current and sensitivity corrections. A set of sophisticated routines also allows the user to make mosaics of several frames including photometric adjustments of the individual exposures.

A calibration directory structure is being created. This will contain general calibration data useful for reduction of data from La Silla. The first data to be included are tables of spectral lines, flux of standard stars, and extinction data. Information on filter transmission curves, performance of ESO CCD chips, gratings efficiencies, etc. will be added later.

2. Portable MIDAS

The developments of the portable version of MIDAS are proceeding according to schedule. The portable monitor has been tested successfully on a μ VAX ULTRIX system while internal verifications on a SUN and Bull SPS 7 system are in progress. The full Table File System has been ported using the new set of table interface routines. The Fortran application code has been converted from VAX/VMS Fortran to standard Fortran with 5 simple extensions (i.e. INCLUDE, IMPLICIT NONE, !-comments, ENDDO and long internal names). A preprocessor was made for Fortran compilers which do not support these extensions.

We are also happy to announce that a new UNIX system programmer, Carlos Guirao Sanchez, has joined the IPG. One of his main responsibilities is to develop and maintain the system dependent interfaces of MIDAS. He will therefore be strongly involved in the implementation of MIDAS on new systems.

3. MIDAS Workshop

The next Data Analysis Workshop, arranged by the ST-ECF, will be held on the 26th and 27th April, 1988. For the convenience of people who also want to participate in the MIDAS workshop, the Image Processing Group has scheduled this workshop for 28th April, 1988. The programme will include sessions on general developments and new applications. Since the Portable version of MIDAS will be made available during this summer, a significant part of the MIDAS Workshop will be devoted to this topic. We anticipate giving a demonstration of a prototype of the Portable MIDAS during the workshop. A tentative agenda will be sent out to all MIDAS sites together with other material for the Data Analysis Workshop. People interested in participating in the Workshop should contact either the IPG or the ST-ECF.

4. MIDAS Hot-Line Service

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

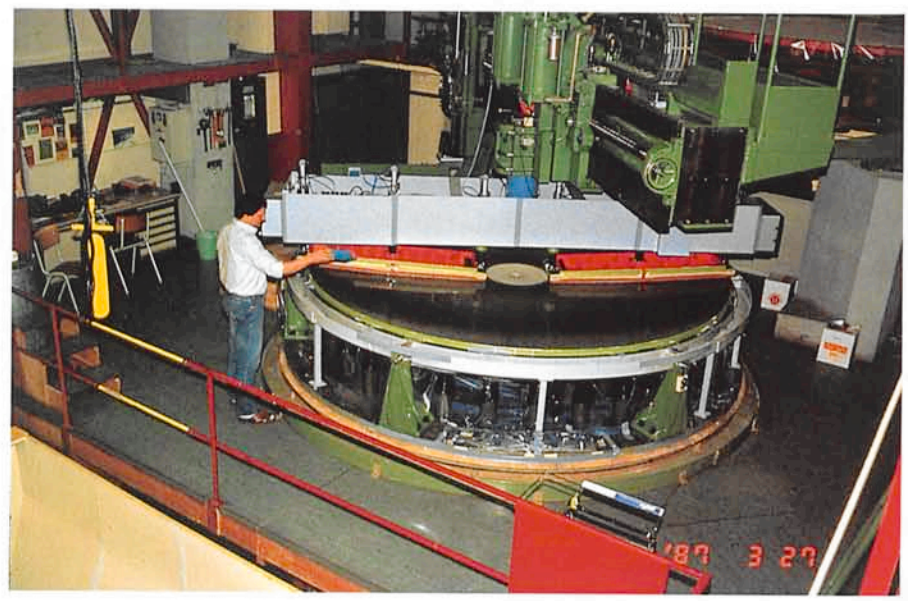
- EARN: MIDAS@DGAESO51
- SPAN: ESOMC1::MIDAS
- Tlx.: 528 282 22 eso d, attn.: MIDAS HOT-LINE
- Tel.: +49-89-32006-456

Also, users are invited to send us any suggestions or comments. Although a telephone service is provided, 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.

Unusual Building for the ESO NTT Arrives at the La Silla Observatory

Early in February, M/S *Cervo* arrived in the harbour of Valparaiso, Chile, with the packaged parts for the building which will house the ESO New Technology Telescope (NTT). Soon thereafter, the 350 ton load was hauled by road to the ESO La Silla observatory in the Atacama desert, some 600 km north of Santiago de Chile. Here, at one of the best astronomical sites on earth, the giant mechanical puzzle will now be put together to form one of the strangest telescope domes ever seen.

The NTT will be mounted in a rotating building with an unusual octagonal shape. It has been designed to ensure maximum exposure of the telescope to the external environment during observation, while protecting the structure from strong winds and dust. Furthermore, the floor of the building is actively cooled and the temperature in the telescope room and in the instrument rooms is maintained at the level of the



The 3.58-m NTT main mirror being polished at Zeiss, Oberkochen, F.R.G.