First Observing Run with DISCO was Successful

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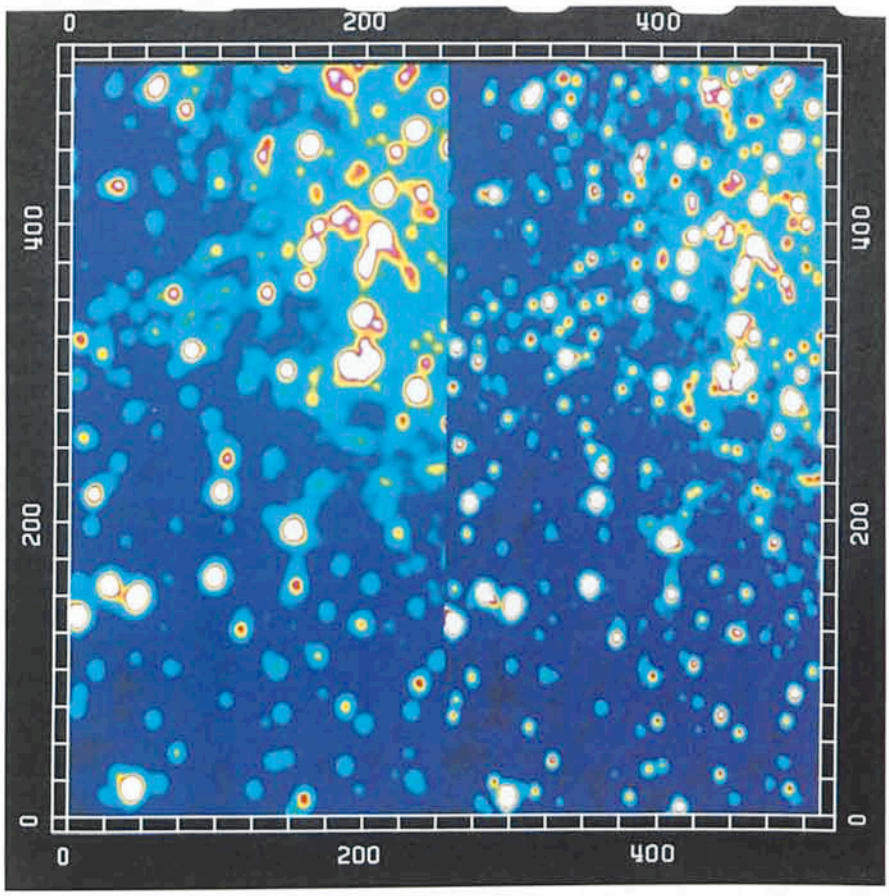
The Direct Image Stabilized Camera Option DISCO was tested for the first time from 29 November to 5 December at the 2.2-m telescope with a CCD camera. The instrument was described in *Messenger* **48,** p. 51. It comprises a new adapter for the 2.2-m telescope with a newly designed XYZ offset guider. 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.