der separations from 6.5 to 13.5 arcsec, the interorder intensity is below 3 % of the continuum intensity. No grating or optical ghosts were detected above the 1 % level. A systematic search at fainter levels has not been made yet.

Figure 5 shows the variation of wavelength bin size in Å as a function of order and within a single order. The strong variation of the wavelength bin within the order is an effect of the steep blaze angle of the echelle and has to be taken into consideration in the data reduction.

Finally, Figure 6 shows as an example of astronomical observations an untreated 1-hour spectrum of the nucleus of the Seyfert galaxy NGC 3783 (m(v)≈14).

In conclusion, the test of the R4 mosaic grating prototype on EMMI has confirmed the good performance which was indicated by the laboratory results and provides support to the choice of this type of solution for the VLT UVES spectrograph. Concerning a possible regular use of this grating in EMMI for scientific programmes, additional measurements will be needed to confirm the predicted limiting resolution and to test any flexure of the grating unit as the instrument rotates at the Nasmyth adapter. If these are successful, the R4 on EMMI would provide a unique possibility for obtaining spectra over a wide wavelength range at a resolution up to 70,000 for objects as faint as 16.5. If the users will express a strong scientific interest in such a facility, ESO will consider offering it as a standard option of EMMI as of 1995.

*Acknowledgements*

The R4 echelle was produced by Milton Roy (Rochester, USA) by the team led by John Hoose. The housing for mounting it on EMMI was designed at ESO by G. Hess. Thanks for the successful run at the telescope are due to the technical team which carried out the upgrading of the red arm of EMMI (see the report in this issue of the *Messenger*) and to P. Molaro (Trieste Observatory) for assistance during the astronomical observations.

TABLE 3. *Performance data of the R4 echelle on EMMI*

| | | | |
|---|---|---|---|
| Resolution | | 45,000 wih a 1.4 arcsec slit (measured)<br>=70,000 with a 0.7 arcsec slit (to be verified, see text) | |
| Wavelength bin | | 30 mÅ at 5000 Å | |
| Spectral formats | | Wavelength range | Order separation |
| Recommended grisms | 3 | 4070–8370Å | >3.7 arcsec |
| | 5 | 4070–6640Å | >6.3 arcsec |
| | | (gaps beyond 7450Å) | |
| Global efficiency (at air mass=1) | | 1 photon/Å/sec at 5500 Å for a star of m(v)=16.6 | |

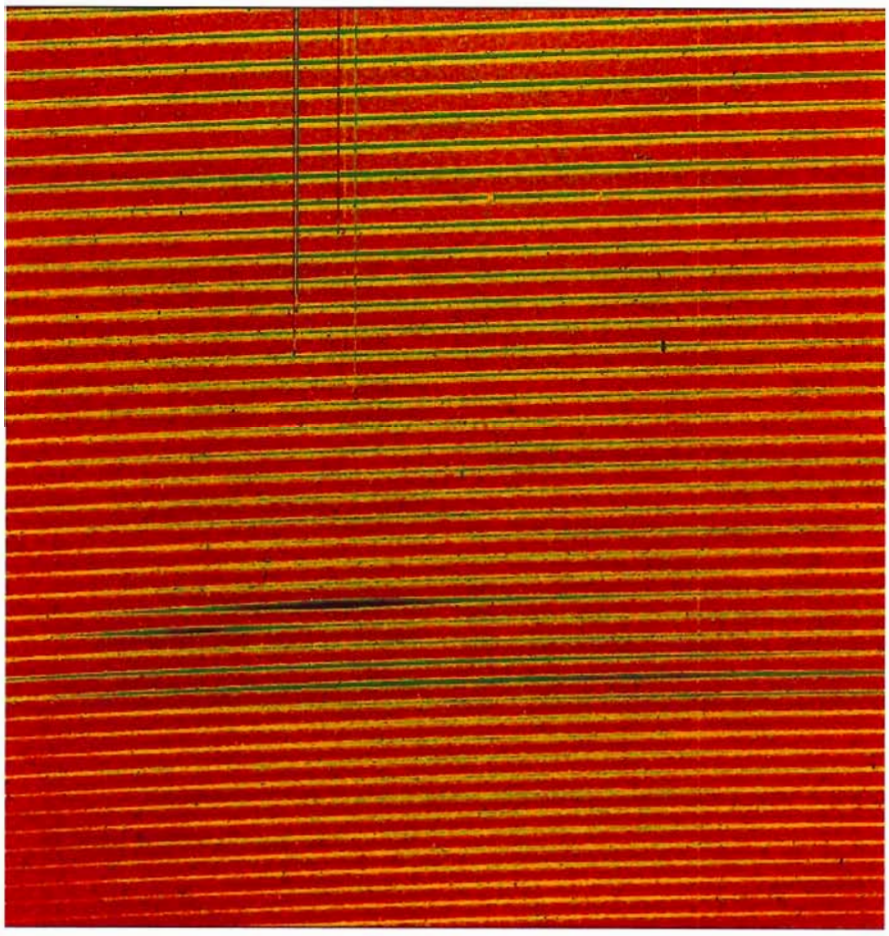

Figure 6: *Central 1400×1400 pixels of an untreated 1-hour exposure of the nucleus of the Seyfert galaxy NGC 3783 with EMMI and the R4 grating prototype. The broad Hβ and the two [OIII] emission lines are visible in the lower half and interstellar NaI absorption lines in the upper part of the frame. At a potential resolution up to 70,000, this spectrum of a m(v)≈14 object has a S/N ratio≈40 in the continuum.*

# News from La Silla

*J. MELNICK, ESO-La Silla*

## 3.6-m Pointing

An effort has been done to understand the behaviour of the pointing model of the 3.6-m telescope for different instruments. As a result, the methods for top-ring and top-end exchanges have been refined in order to avoid movement of the secondary mirror. Pointing is now stable. The software has been modified to permit fast models by adjusting only 8 parameters.

## 3.6-m Seeing

Progress has been achieved in understanding the bad seeing experienced at the telescope after the installation of the AIRCO cooling system. Measurements made by installing DIMM1 inside the

dome and comparing the seeing measurements with those of DIMM2 (permanently installed near the Schmidt telescope) indicate that, when operated correctly, the AIRCO system effectively eliminates dome seeing, at least for the conditions prevailing during the tests. This indicates that the seeing degradation experienced with most instruments, notably EFOSC, is due to heat sources at the telescope itself. A plan for monitoring and eliminating these heat sources is in preparation. In the mean time, the AIRCO system will not be used except in cases where considerable seeing improvement has been reported (i.e. Come-On+), since the tests clearly show that the cooling aggravates the effect of any uncontrolled heat sources in the dome like for example an outside door accidentally left open.

### Manuals

New manuals are available for EFOSC2 and IRAC2. Also, updates for the EFOSC1, CES, and CASPEC manuals have been written. All are available from the Visiting Astronomers Section.

### On-Line MIDAS

Workstations for on-line data reductions with MIDAS are now available at the 0.9-m, both 1.5-m telescopes, the 2.2-m telescope, the NTT, and at the 3.6-m telescope for TIMMI and Come-On+. It is expected that the CES and the 3.6-m EFOSC, MEFOS, and CASPEC will be connected to workstations very soon. Work is in progress to replace the old IHAP-based HP acquisition programmes by workstation-based systems.

### B & C Gratings

A 2,400 gr/mm holographic grating was successfully tested at the ESO 1.5-m telescope. With a blaze at 400 nm this grating is more efficient and spectrally cleaner than the equivalent conventional unit (Grating #20 in second order; 2.9 nm/mm). The tests were done using a temporary support that introduces some astigmatism. The grating will be offered to visitors as soon as a permanent support has been manufactured.

### Dutch Telescope Focus

The focus stability of the Dutch telescope has been substantially improved by the installation of a new secondary mirror support unit. The slow focus drift during the night which remained after the installation of the new unit, seems almost certainly related to overcooling of the unit by radiation during the night. Work is in progress to eliminate this effect.

### ESO 50-cm Telescope

The automatization of the ESO 50-cm telescope, following a scheme similar to the one used at the Danish 50-cm, has been completed, although the debugging of the new system is still not complete. The pointing of the telescope is now excellent (typically 10″ rms), and the autocentring device allows the telescope to be used fully automatically. Tests for remote operation will be conducted soon.

## NTT BITS & PIXELS

*With this periodically compiled collection of short notes, the NTT Team intends to keep the community informed about changes in performances, configuration, and operation of the NTT and its subsystems.*

### NTT Coordinator

On a rotating basis, this new function is shared between the 4 NTT astronomers on La Silla (presently E. Giraud, R. Gredel, G. Mathys, and J. Storm). From early in the morning into the first hours of the night, the NTT Coordinator is supervising all activities at the NTT. He has full responsibility and authority for any decision which has to be taken on a short notice in response to the daily requirements. He can be reached via paging code No. 50 and in most cases is the primary on-site contact person for NTT observers.

### Day Time Interventions

Any day-time work at the NTT requires prior approval by the NTT Coordinator. Every day, the period between 9 a.m. and 2 p.m. (may be extended by the NTT Coordinator) is reserved for maintenance, instrument setups, and repairs. Upon termination of the work (not only completion), the NTT Coordinator has to be informed about the progress made and the effects on performance expected for the night so that night assistants and observers can prepare themselves accordingly.

### NTT Calendar

The NTT Coordinator enters all maintenance and other work into a computer-based calendar. From any X-terminal connected to the workstations of the Astronomy Support Department and the NTT, this calendar can be viewed by typing `nttcal`. This simple but very useful tool has kindly been created by C. Levín.

### Electronics Support Strengthened

The NTT Upgrade Plan (now available via anonymous `ftp`, cf. below) foresaw that initially only one electronician (D. Gojak) would work for the NTT but that the adequacy of this approach would be carefully monitored. It has become evident that also in the respective other weekly shift electronics support is constantly required. We are, therefore, happy to announce that R. Parra has for a significant part of his time been assigned to the NTT. In fact, he is not at all new at the NTT, and many NTT (and other) observers will know him already.

### Image Quality

Elongated images have been reported by many observers. It now seems probable that the main contributing factor is astigmatism. Its nature will be studied in more detail during the forthcoming test nights in May and June. Nevertheless, in one night in May images as good as 0.35 arcsec FWHM were obtained which is virtually identical to the results achieved at first light (cf. *The Messenger* No. **56**, 1). A decisive factor contributing to this recovery has, of course, been the dramatic improvement in the average seeing on La Silla which has taken place since the middle of 1993 (see the article