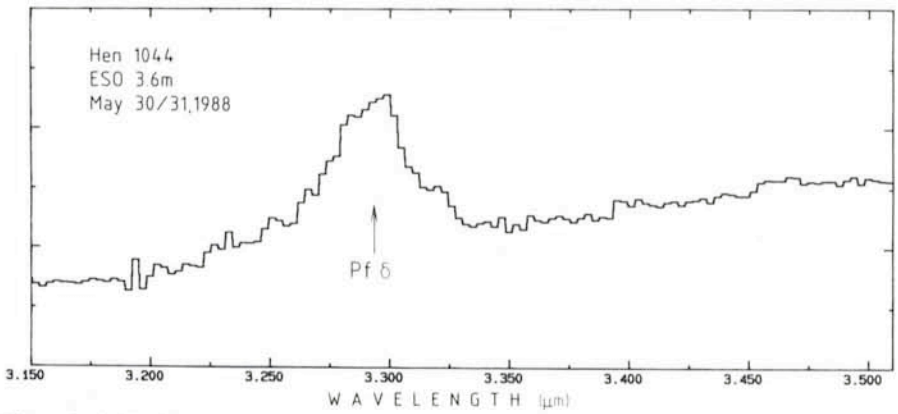

Figure 2: *3.15–3.50 μm spectrum of Hen 1044. The expected position of Pf δ at 3.296 μm is indicated by an arrow.*

source presents a plateau of emission extending from 11.3 to 13.0 μm. They discovered this new feature in the LRS's of 20 IRAS sources which exhibit emission at 7.7 and 11.3 μm and attributed it also to PAH's.

The spectrum presented in Figure 2 has been corrected for atmospheric extinction as explained above; no other treatment of the data (smoothing, etc.) has been performed and its resolution is exactly the one given by IRSPEC in this wavelength range (i.e., R ~1100). As the object is bright (L ~4.3), the noise in the final spectrum is mainly due to imperfect cancellation of atmospheric features. The 3.3-μm emission is clearly seen in the Hen 1044 spectrum; the feature is resolved and presents asymmetric wings. Adjusting it with a gaussian profile (which is somewhat equivalent to degrading the resolution of the spectrum), one finds a central wavelength of 3.292 μm and width of .044 μm. However, as the contribution of the Pfund δ hydrogen line (9-5) at 3.296 μm might not be completely negligible, a careful analysis is needed; this line is expected to affect at most two contiguous pixels. An interesting characteristic of this spectrum is the total absence of feature at 3.4 μm and longwards. The clear absence of emission at 3.4 μm suggests that the features at 7.7 and 11.3 μm and the plateau at ~12 μm are not correlated with it. Such recognition of correlation (or absence of correlation) between features, in combination with laboratory studies, will allow to constrain the identification of the different PAH's existing in astrophysical environments (see, for instance, de Muizon et al., 1986). The complete infrared spectrum as well as a discussion of all the data acquired on this interesting object will be presented elsewhere.

In Figure 3, the spectrum of Hen 1379 (another post-AGB object studied by the author) is presented. Most atmospheric features are well cancelled, except the strong telluric absorption at 3.318 μm which varied during the observations in such a way that an "emission line" appears around 3.3 μm. At CVF resolution, such an effect may mimic the unidentified 3.3-μm emission; with the resolution of IRSPEC, there is no ambiguity on its telluric origin: the 3.3-μm feature is clearly absent from the spectrum of Hen 1379. Some reported detections of the 3.3-μm feature with CVF's have not been confirmed later; the reason may simply be a rapid variation of the atmospheric absorption around 3.3 μm.

In conclusion, spectroscopic observations in the range 3.0–3.5 μm are feasible at La Silla using the 3.6-m telescope equipped with IRSPEC and promising prospects are offered by the utilization of this instrument. However, a careful preparation of the observations is required to get useful data; the observing planning should not be improvised at the telescope. Such a preparative work is surely time consuming and painful, but, at the end, it may make the difference between a successful mission and an unsuccessful one.

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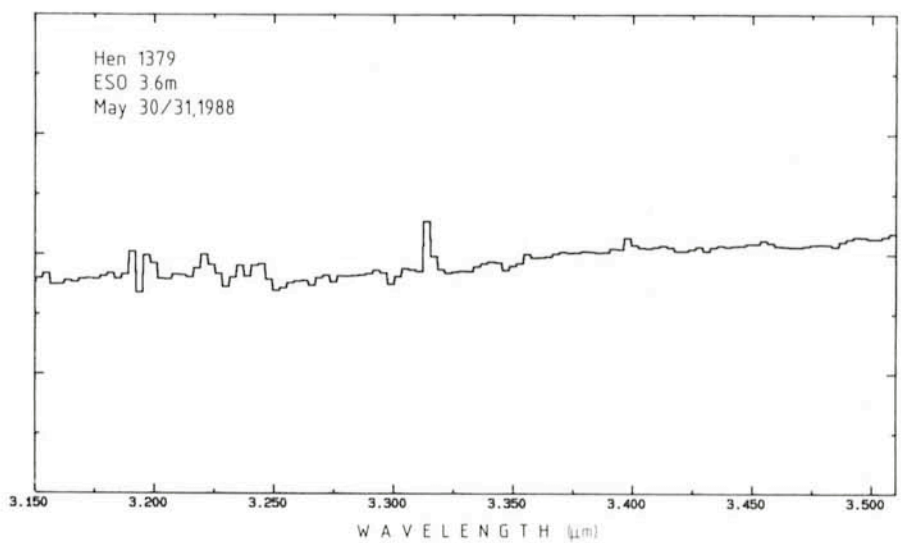


Figure 3: *3.15–3.50 μm spectrum of Hen 1379. The "emission line" at 3.32 μm is an artifact due to atmospheric Methane (see Figure 1).*

STAFF MOVEMENTS

Arrivals

Europe:

ALBERTH, Manuela (D), Administrative Clerk Purchasing
BECKERS, Jacques (USA), Experimental Astrophysicist
JANSSEN, Edmund (NL), Draughtsman
OOSTERLOO, Thomas (NL), Fellow
PIENEMAN, Hendrik (NL), Accounting Assistant
PIRENNE, Benoit (B), Fellow (Science Archive Software Specialist)
PRIEUR, Jean-Louis (F), Fellow
VAN RIJN, Gunilla (NL), Administrative Assistant
WALLANDER, Anders (S), Software Engineer
WIELAND, Gerd (D), Procurement Officer

Chile:

AUGUSTEIJN, Thomas (NL), Student
HUTSEMEKERS, Damien (B), Fellow
JARVIS, Brian (AUS), Fellow
PASQUINI, Luca (I), Fellow
VAN DROM, Eddy (B), Coopérant

Departures

Europe:

GIRAUD, Edmond (F), Fellow
MAGAIN, Pierre (B), Fellow
RICHICHI, Andrea (I), Student
RUSSO, Guido (I), Fellow (Data Archivist)

Chile:

BOHL, Thomas (D), Infrared Instrumentation Engineer

EMMI Grating Unit under Test

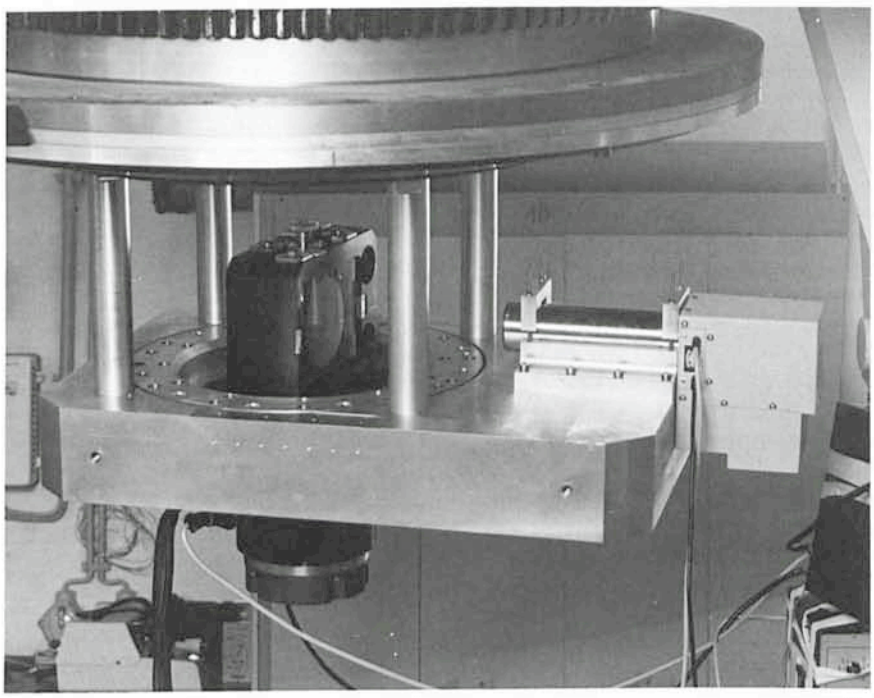
The photograph shows a grating unit of EMMI (ESO Multi-Mode Instrument, the optical-range spectrograph for one of the Nasmyth foci of the NTT) that is currently being tested in ESO's integration laboratory in Garching. The mechanical parts for this unit have been manufactured by Enraf-Nonius in the Netherlands using designs made by the ESO mechanics group. The concept and design had been successfully tested on a prototype in the fall of 1987. Two gratings are mounted back to back in the grating holder of which the angular position is servo-controlled. Selection of the central wavelength will be remotely controlled as well as flipping the grating holder 180 degrees to select the other grating.

For precise positioning we selected the Heidenhain ROD 905 incremental encoder which is the most accurate encoder currently available. It has a radial grating with 36,000 lines/revolution and (by using 100 × subdividing electronics) a measuring step size of 0.36 arcsec. Although this could be marginally sufficient to achieve the +/− 0.5 to +/− 1 arcsec stability that is required for the complete unit, the ESO electronics group developed a new servo technique which locks on a zero-crossing of the basic sinewave. This so-called "phase-locked servo loop" has an electronic stability of +/− 0.1 arcsec. The tests measure the mechanical flexure of the unit in the orientations in which it will be used at the telescope as EMMI turns to follow the field rotation.

Five gratings are currently on order, three blue and two red ones. They are blazed at 400 and 550 nm for the blue and red arms of EMMI, respectively and provide resolving powers of up to 4,000 assuming a one arcsec wide slit. In a later stage, gratings with larger groove densities will be purchased that yield R up to 10,000 as well as an echelle for the red arm with R = 24,000.

The integration of the EMMI spectrograph in Garching will commence in the fall of 1988 and tests will continue during the first months of 1989. In the second part of that year the instrument will come into operation at the NTT.

H. DEKKER, ESO



MIDAS Memo

ESO Image Processing Group

1. Application Developments

The table file system is being enhanced with a number of astrometric functions which will make it possible to perform full astrometric reductions in MIDAS. They include transformations between different coordinate systems, correction for epoch and equinox differences, and general astrometric reduction programmes.

Reduction procedures for data from the Infrared Array Camera (IRAC) are being developed in collaboration with A. Moneti. Besides extensive use of the existing CCD package, some new programmes were made to optimize the extraction of data utilizing the special characteristics of IR array detectors.

A new context implementing relational algebra on tables has been included. This context, developed in collaboration with the IFCAI in Palermo, is an experiment to extend the functionality of the table system.

2. Work Stations

To relieve the situation of interactive image processing with MIDAS both in Garching and at La Silla, a decision was made to purchase 5 work stations out of which 3 will be placed at La Silla. These work stations will be used in single user mode for interactive usage of MIDAS and linked to the main computer facilities through a Local Area Network using TCP/IP protocols.

During the spring of 1988 more than 20 different UNIX systems were benchmarked with the portable MIDAS. A detailed report of these tests will be given in the next issue of the *Messenger*. On the basis of these results and offers received, the systems were ranked according to their price-to-performance ratio. Three single user work stations