and the RCA # 9 at the same camera will be discontinued and that the RCA CCD will be permanently mounted on the CES Short Camera.

We regard this as an optimum compromise between scientific performances and the severe operational and maintenance constraints of the observatory.

Users must however be cautioned that this new configuration has not yet been extensively debugged. In the next months, their feedback on the astronomical performance and any general comments will be much appreciated.

Some problems have already been identified and are being investigated. Namely:

(1) Some vignetting is present at the blue edge of the spectra and this makes the first ~ 150 rows of little use. Vignetting was present at a lower level in the Reticon spectra: the larger format of the Ford shows this problem much more clearly.

(2) In order to reach the predicted performance of the new set-up, it is essential to operate the CCD in an optimal way, in particular with regard to the RON and the dark current. During the tests, the level of the dark current was somewhat higher than expected and the on-chip binning introduced variable patterns in the background at a level higher than the measured RON. Both of these problems have already been observed in the past with other CCDs, but they are transient in nature and hence not easily debugged. A careful monitoring of these CCD parameters by the scientific users is recommended and it will be useful to optimize the CCD performance.

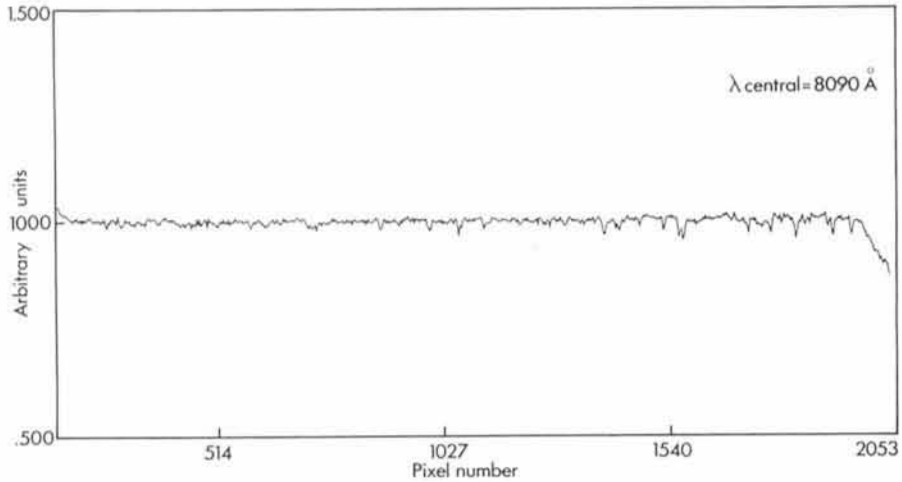

Figure 3: *A 5-minute, normalized spectrum of the standard star HR 718 centred at 8090 Å. No flat-field correction has been applied. Note the absence of interference fringes.*

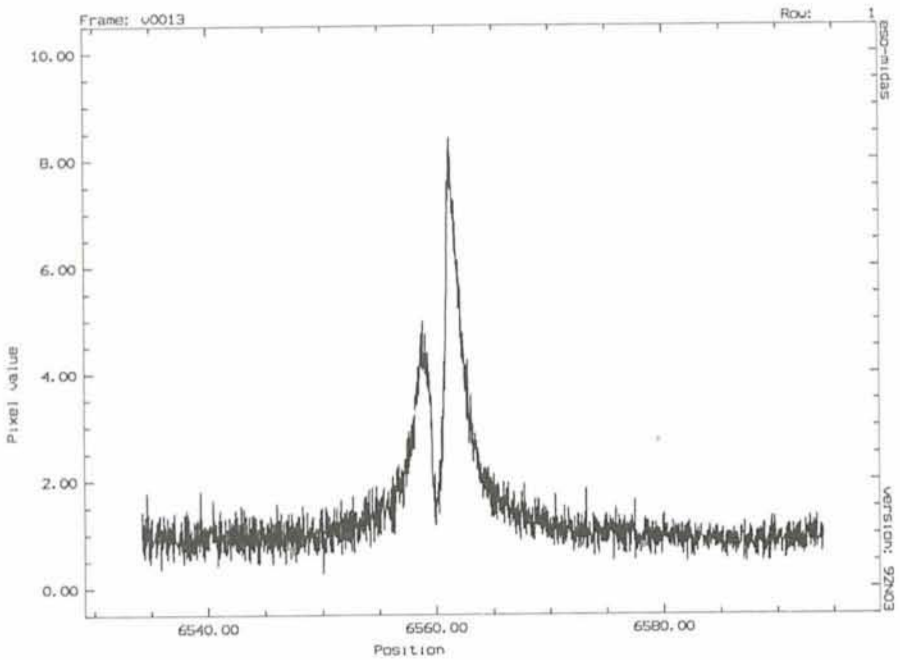

Figure 4: *A 1-hour Hα spectrum of the recurrent nova V745 Sco. The S/N is ~ 5 in the continuum.*

Acknowledgements

The mechanics and detector groups at La Silla worked hard and successfully to adapt the new CCD to the Long Camera. H.V. Winckel kindly provided some of the observations.

References

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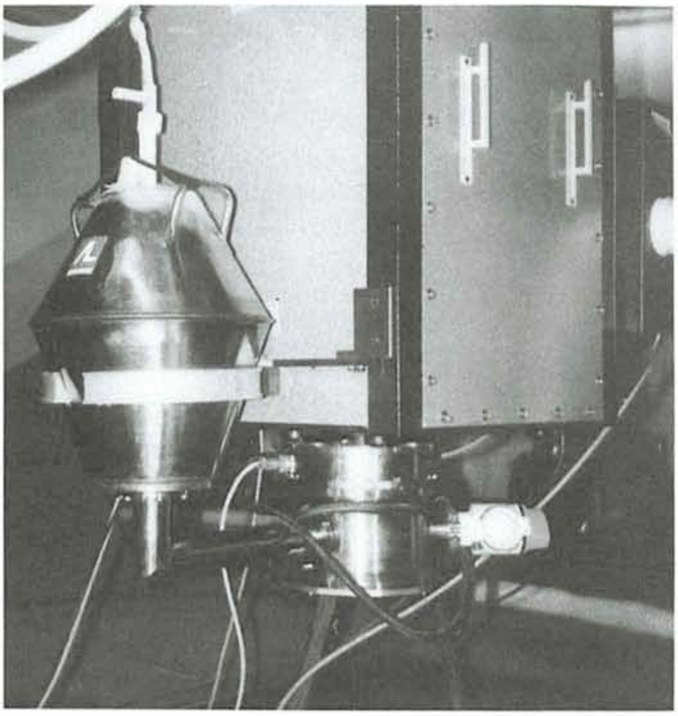
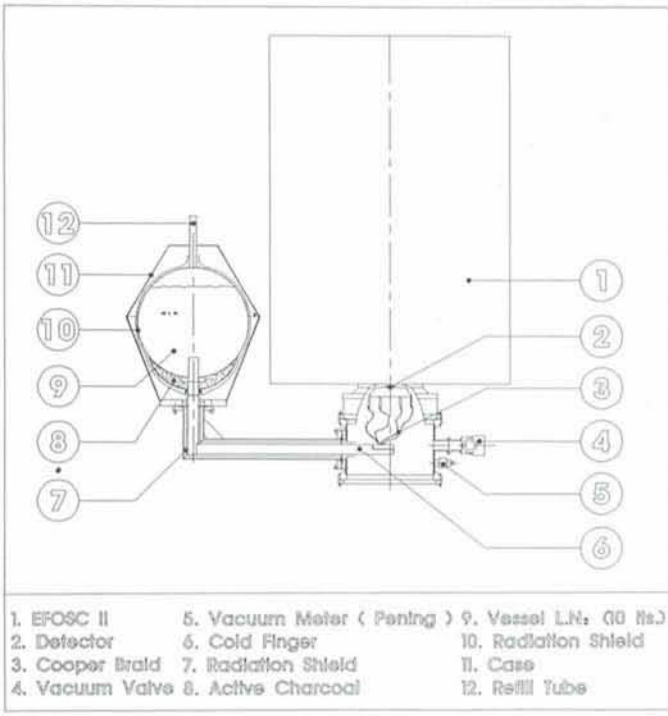
New CCD Cryostat for EFOSC2

At the time of the transfer of EFOSC2 from the NTT to the 2.2-m telescope the instrument set-up had to be revised. The plan was to interface it to the 2.2-m rotator-adapter (DISCO) in order to profit from the existing calibration and guiding facilities.

The mounting extention with the large format CCD cryostat at the bottom of the instrument, however, restricted the declination drive freedom to 63° in the south. The intention was to replace the IR Lab cryostat with a shorter LN_2 container. But the hold time of such a small dewar presented a severe limitation.





Therefore we engaged in the design of a short CCD head connected to an LN_2 storage dewar via a cold finger feed. In the figures the dewar arrangement is sketched. A 70-cm-long copper bar, radiation shielded under vacuum, transfers the LN_2 temperature (77K) from the storage dewar to the detector head. The thermal impedance of the cold finger plus copper braids and thermal connectors was carefully designed in order to reach the detector cold plate with a temperature of 140K. This brings the cooling near the operational temperature range of the CCD and allows to minimize the energy input for the temperature regulation in the detector head.

The results in terms of temperature stability and autonomy are excellent (i.e.: < 0.2° stability and 48 hours hold time at the telescope).

The unit was designed and integrated by Mr. Leonardo González, the La Silla cryogenic technician, while the detector head was machined in the mechanical workshop.

The cryostat was mounted early February this year and free access to the Magellanic Clouds was granted to the EFOSC2 users at the 2.2-m telescope.

Problems? Occasional slippage in the LN_2 refilling schedule brings the system to an unhappy user's scream when the cooling is stressed through a 3rd night of autonomy!

L. GONZÁLEZ, D. HOFSTADT, R. TIGHE, ESO-La Silla

Characteristics of the EFOSC2 Cryostat
– Vacuum $10^{-5}/10^{-6}$
– Cooling time (starting from ambient T): 6 hours approx.
– LN_2 consumption: 3 lts/day
– Temperature regulation power input: 0.4 Watts

DEWAR, MODEL HD-2(8)

OUTLINE SKETCH