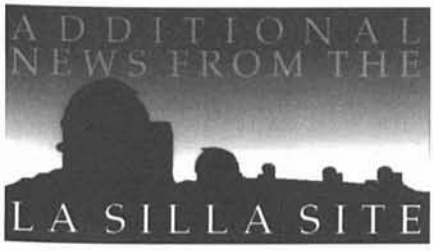

The La Silla News Page

The editors of the La Silla News Page would like to welcome readers of the fourth edition of a page devoted to reporting on technical updates and observational achievements at La Silla. We would like this page to inform the astronomical community to changes made to telescopes, instruments, operations, and of instrumental performances that cannot be reported conveniently elsewhere. Contributions and inquiries to this page from the community are most welcome. (P. Bouchet, R. Gredel, C. Lidman)

A New CCD for the B&C Spectrograph on the ESO 1.52-m Telescope

C. LIDMAN

During the beginning of March, a new CCD (#39) was installed at the ESO 1.52-m telescope. This CCD is intended for use with the B&C Spectrograph. The new CCD is a UV-flooded, thinned, Loral CCD and is a 2048 × 2048 array of 15 micron pixels.

Compared to the old Ford CCD (#24), the new CCD has a five-fold increase in sensitivity at 4000 Å and a two-fold increase in sensitivity at 6000 Å. This large increase in sensitivity is gained at the expense of a slight decrease in the resolution of the instrument, particularly in the blue. This is demonstrated in Table 1 which lists the FWHM (Full Width at Half Maximum) for various spectral lines at different slit widths. With the holographic grating (#32) this translates to a resolution of 2500 at 3700 Å.

The dark current of the new CCD is 5.2 ADU (6.2 electrons) per hour and the read noise is 5.8 ADU. The pixel scale along the slit is 0.82 arc seconds per pixel.

TABLE 1.

Slit width arc sec.	3888 Å		4922 Å		7635 Å	
	#24 (old)	#39 (new)	#24 (old)	#39 (new)	#24 (old)	#39 (new)
1.0	1.64	2.50	1.41	2.27	1.40	1.79
1.5	1.97	2.70	1.67	2.48	1.70	2.01
2.0	2.39	2.99	2.04	2.77	2.09	2.30
2.5	2.83	3.33	2.55	3.10	2.46	2.66
3.0	3.34	3.73	3.04	3.47	2.81	3.09
4.0	4.25	4.51	3.96	4.28	3.68	3.85

The FWHM of chosen spectral lines, as measured in pixels, for various slit widths. The pixel size of the old and new CCDs are identical. Grating #7 was used.

At the time of writing this article, the new CCD has now been in operation for two months. The quality of the UV flood is continually monitored and to date there is no degradation in the efficiency of the CCD nor in the uniformity of the response. With proper care, the UV flood can be maintained for five months or longer, as has been demonstrated by the CES CCD.

The installation of the new CCD has only been possible through the combined efforts of many people both at La Silla and Garching. This includes the CCD group in Garching, in particular S. Deiries and O. Iwert, the optical detector group at La Silla, the 2.2-m team, and C. Ledoux and H. Duerbeck who took all of the initial test observations.

News at the Danish 1.54-m Telescope

J. STORM

The DFOSC CCD Upgrade

In July we will be upgrading the thinned LORAL CCD currently mounted on DFOSC to a UV-sensitive device. This upgrade will be done by Copenhagen University Observatory, who has provided the camera and controller, together with the ESO optical detector team. This upgrade is expected to improve the quantum efficiency (QE) very significantly, not only in the UV but over the full optical wavelength range. The QE of the detector will be very similar to the one of the chip currently mounted at the Boller and Chivens spectrograph on the ESO 1.52-m telescope, i.e. above 80% QE from 350 nm to 750 nm and above 50% down to 320 nm and up to 850 nm.

The Danish 1.54-m TCS Upgrade

The graphical user interface for the Telescope Control System has also been significantly redesigned, and is now based on one fixed window. The interface is now easier to use and more transparent than the previous one. New functionality has also been added, including a graphical user interface to the object catalogue handling. We plan to install and commission the new version in the coming months.

The DFOSC Control System Upgrade

At the same time as the TCS upgrade, the Data Acquisition Integrated SYstem (DAISY), developed originally for the Dutch telescope, will be ported to the

newly-installed dual screen HP-735 at the Danish 1.54-m. The graphical user interface will resemble the one at the Dutch telescope but the functionality will of course be expanded to allow the control of the significantly more complex DFOSC instrument. DAISY will interface to the DFOSC controller (slit, filter, and grism wheels, camera focus) as well as with the telescope focus unit, the filter and shutter unit (FASU), and the CCD controller. Thus DAISY will provide an integrated interface to the complete instrument.

The new HP-735 workstation and the newly installed 150 MHz Pentium PC, which controls the CCD, are now capable of reading out a full 2k × 2k CCD frame (when using a single read-out amplifier) and display it on the MIDAS display on the workstation in less than 90 seconds. In the coming year we will experiment with using two amplifiers simultaneously. This should reduce the read-out time to well under 1 minute.

EFOSC-2 CCD Upgrade

In the last week of July we plan to install a UV-sensitive CCD in EFOSC2. The device will be a thinned LORAL 2k × 2k chip of the platinum flash gate type. This means that the device will not need UV flooding to achieve the high quantum efficiency (a significant operational advantage), but otherwise the specifications are very similar to the ones of the chip currently in operation at the ESO 1.52-m telescope (see above). The new CCD will be significantly larger than the Thompson chip currently in use but the pixels will be slightly smaller (15 μm compared to 19.5 μm). The field of view will thus increase, but we expect that the image quality will degrade towards the edges of the field as EFOSC2 was not designed for such a large-format detector.

With this upgrade, the optical instruments mounted on the three main telescopes operated by the 2.2+1.5-m Telescope Team will all have high-quantum-efficiency, large-format CCDs, making them truly competitive for the coming years.

IRAC1 – Back in Good Shape

C. LIDMAN and H. GEMPERLEIN

IRAC1 is ESO's 1–5-micron imager on the 2.2-m telescope. It has been operating in its present form since 1994.

For IRAC1, 1995 was a disappointing year. Apart from its infrequent use by the community, the camera had suffered from significantly reduced throughput and significantly higher backgrounds than what was found during the initial test observations of 1994.

During the new year, it was discovered that an oily liquid was deposited on the inside of the entrance window lens. The origin of this liquid is unclear, but may be due to the evaporation of overheated insulating material when the detector is baked inside the dewar. The liquid was removed and baking is performed now with greater care. Since that time there have been two observing runs with the camera. The performance of IRAC1 has returned to that measured in 1994.

The Mechanical Support Team (MST)

G. IHLE

Everyone who observes at, or visits, La Silla would have come into contact with the Mechanical Support Team. Some of the time, it is a last-minute modification to a well-prepared experiment; at others, it is a broken pair of spectacles or a broken luggage handle that needs repairing.

The day starts with the eight-o'clock meeting with the other teams. This is where and when the previous night's problems are discussed. Back to the workshop, and after a short discussion, the mechanics plan the day's activities. The stand-by mechanic takes care of all the emergency calls while the other mechanics are dedicated to continuing projects or maintenance. The dome mechanics continue to check daily the condition of the domes, compressors and hydraulic systems of all the telescopes. The cryogenic experts produce the cryogenic liquids vital to the continuing operation of modern detector systems.

At ten o'clock, there is a break: it's coffee time. The famous *CAD* (*C*afé *A* las *D*iez) is held in the design and engineering office. Issues of importance are discussed. If you happen to arrive you will probably find interesting conversation and a good provision of chocolates or cookies that many times are provided by our friends in Garching.

Problems of varying complexity and bewildering variety appear continuously, and most of the time they have to be solved as soon as possible.

During the whole year there are other jobs that require special attention. The aluminisation of telescope mirrors is one of great importance. This delicate job is handled by the MST until the mirror is left at the aluminisation plant, where the Optical Group takes over. After cleaning and aluminisation, the MST take care of its re-installation.

The different projects that are developed by the MST at La Silla start from an idea that is expressed as detailed design to the manufacturing of parts to a precision, when required, of no less than a few microns. The MST have conceived projects as the Schmidt guider and film holder, EFOSC2, the 1.52-m telescope mechanical upgrade, the NTT telescope installation, the CCD adapter flange for the CES, the mechanical improvements for different telescopes, etc. They have been carried to reality by a group of mechanics with a vast experience and a willingness to make things to the highest quality.