achieved by a spherical mirror mounted on the axis of a torque motor driven by a square wave generator and located at the image of the entrance pupil. This device is able to perform a square wave beam-switching of more than 30 arcsec at f = 30 Hz.

Despite rather bad weather conditions and although several points must be improved (baffling of the detector, data-acquisition system), our first run at the 3.6 m was very encouraging. We mapped several H II regions in our galaxy and the large LMC H II region, 30 Dor. The most significant result was obtained on the core of RCW 38 IRS1. We improved the resolution of the previous mapping by Frogel and Persson (1974) and discovered a complex structure of the source at 10 microns (fig. 3). The analysis is in progress to determine whether the structure is due to the presence of a cluster of sources or to a variation of dust opacity.

Maps of the same region were obtained at 2 and 3 microns at the 1 m telescope (fig. 4). At 3 microns the map is roughly similar to the map at 10 microns with the same resolution, a result which seems to indicate a smooth variation of dust temperature over the H II region and to support the idea that dust is more likely heated via Lyman α photons resonantly trapped inside the ionized medium than via Lyman continuum photons.

The mapping of 30 Dor was quite disappointing since we did not detect any source in a 40 x 40 arcsec area around the central exciting star R 136 at a level of 4 janskys at 10 microns in the 7 arcsec diaphragm. This result seems to be in agreement with the assumption that, in this region, the "hot" dust has been already blown away by stellar winds while "cold" dust is seen at 100 microns (Werner et al., 1978). We plan to reobserve this region at 20 microns under better weather conditions.

References

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New Clock System for La Silla

One of the features of the La Silla observatory that impresses visitors most is the incredible number of clocks. Sure, nobody doubts that astronomers need accurate time—but why so many clocks?

The simple answer is that different times are used at an observatory for different purposes. We are all familiar with the *Local Time,* which on La Silla is the time used in Chile for civic purposes. In winter, it is 4 hours behind GMT (Greenwich Mean Time) and during the summer it is advanced by 1 hour. The time difference between Geneva and München in Europe and La Silla is therefore 5 hours from April to October and 4 hours during the rest of the year.

Astronomers often use the so-called *Universal Time* (UT) for their observations. Originally, UT was equal to GMT, but after introduction of a standard second that is based on the caesium atom (9 192 631 770 periods per second), a new system, the so-called *Universal Coordinated Time* (UTC), has come into use. This system is kept in step with the mean solar time, as defined by the motion of the Sun. Since the rotation of the Earth is slowing down, it is occasionally necessary to insert an extra second in the UTC.

Finally, the positions of celestial objects in the sky are given by the *Sidereal Time* (ST), which is determined by the stars.

On La Silla, Local Time, Universal Coordinated Time and Sidereal Time are shown. Until now, all clocks have been synchronized by a quartz clock, installed in the Schmidt building. However, this clock cannot be directly connected to the various telescope control systems. Furthermore, there is an increased need on La Silla for having a very high accuracy in time measurements, for instance when measuring ultra-rapid variations in quasars, etc.

It has therefore been decided to install a new clock system on La Silla, and a Caesium Beam Frequency Standard was ordered by Cermé in Paris, France. After a test period of six weeks in Geneva it will be shipped to La Silla. The accuracy should be sufficient for all purposes: for UTC it is better than 0.0001 sec/year and for ST it is better than 0.01 sec/year. In other words, we have to wait at least 10,000 years, before it is wrong by 1 second! Remains to be seen whether there will still be astronomers at La Silla by that time.

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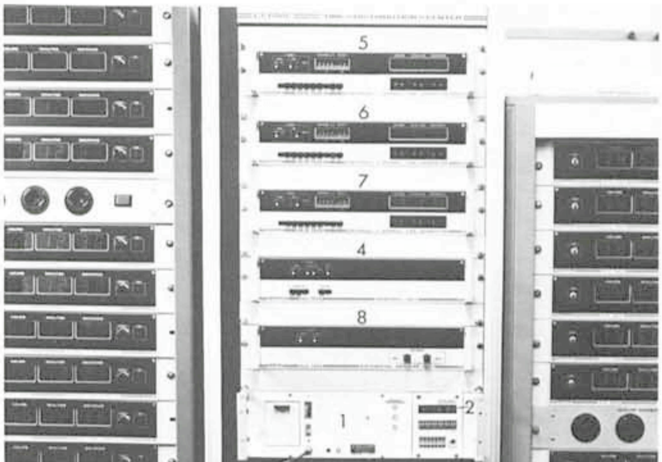

The new atomic clock for ESO-La Silla. The various components are marked on the figure: (1) caesium frequency standard, (2) clock for time transport, (3) battery pack for time transport (10 hours), (4) frequency unit, (5) UTC time code generator, (6) ST time code generator, (7) spare time code generator, (8) line drive amplifiers, (9) battery pack for non-break power (4 hours).