The Seeing at the 3.6m Telescope: Status of the Study

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A first series of test nights dedicated to study the seeing at the 3.6 m telescope commenced in September this year and will conclude in February 1996. During these tests, both the seeing and the pupil image are continuously recorded in order to allow for a better understanding of the phenomena.

The actions taken so far have concentrated on tracking down and suppressing heat sources inside the dome, especially near the light beam. The encoder of the Cassegrain rotator and the electronics rack on the M2 unit are two examples. The former was insulated from the beam. It is located 20 cm from the beam at 1 meter from the Cassegrain focus. The latter, which was dissipating about 60 watts in the centre of the beam, is now only switched on when focusing is required.

Current work includes a preliminary approach to ventilate the mirror and a study for cooling the electronic racks in the cage, which generate several hundreds watts.

A seeing database is now used at the workstation in the control room. It is dedicated to recording and archiving the seeing measurements made every night. The software allows for automatic recording of all environmental conditions; temperature inside the dome measured at 15 various locations, wind speed and direction, slit direction, outside seeing at the seeing monitor (dimm2), etc. This data is saved each time a seeing measurement is made. This is done at least once per night. These measurements are straightforward and quickly made; it takes less than 30 seconds for the night assistant to enter into the data base the seeing, the zenith distance, and to specify the wavelength of the instrument. All the other information is transferred automatically to the workstation. In parallel, a programme running on a PC continuously records and displays environmental conditions.

A preliminary conclusion of the changes made to the 3.6 m and the results obtained will occur after the February test nights. Improving the seeing at the 3.6 m is a long term study; there are many parameters involved, and the problem cannot be solved in a few months. Other test nights will be requested during the coming periods to continue this programme for improving image quality.

Calibration of the IRAC2B Fabry-Perot

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The performance of the warm Fabry-Perot (FP) used with the IRAC2B camera on the 2.2 m telescope has now been characterised.

Across the array, the wavelength of maximum transmission varies. Using lens LC, the variation amounts to 8 Å over the central section, but from the center to the edge it is more than 16 Å. The variation is caused by a combination of two effects: a tilt added to the FP relative to the optical axis so that a bright thermal ring lies near the edge of the array and not in the center, and a higher than anticipated error in the non-flatness of the FP plates. These effects are inherent to the system and also occur with other imaging FPs (cf. Aspin et al. 1992 MNRAS 258, 684; Inoue et al. 1993 PaSJ 45, 539).

A map of the wavelength shift can be made by scanning a bright night sky line. The line at 2.18 microns is particularly well suited for such a task. Recent tests have shown that the shift can be determined to within 1 Å, and, over the central one arc minute of the array (using lens LC again), the map appears to vary little from one run to the next. However, this does not mean that the map does not vary with wavelength. This is still to be determined.

Instrumental fluxes of lines that are narrower than the instrument resolution, which is near 15 Å, can be recovered to about 5% if six wavelength settings are employed, four across the line and two well separated from the red and blue wings of the line. For lens LC, this result applies to the central one arc minute of the array. Flat-fielding, sky-subtraction and correction for the illumination pattern are done following the procedures used for broadband imaging. It is very important that dome flats be obtained for each wavelength setting.

The conclusion from this extensive testing is that the FP on IRAC2B can be used for studies that want to determine either line fluxes, velocity fields or both.

IRAC1

C. LIDMAN

Many projects employing IRAC1 image in the near IR, 1 to 2.5 microns, as well as the mid IR. As IRAC2B is significantly more sensitive in the near IR, we strongly recommend to observers who are planning observations in this wavelength region to combine observations with IRAC2B and IRAC1. To those observers who will have time on IRAC1 in the near future, we would like you to consider whether or not you can complete some of your programme using IRAC2B. It is sometimes possible, schedule permitting, to observe with IRAC1 and IRAC2B during a scheduled IRAC1 run.

We wish to emphasise that broad band M is not currently possible with IRAC1. The background flux is simply too high for the shortest integration now available. There are, however, two narrow band filters available, MN1 and MN2. These filters are about four times narrower than broad band M. Observers should realise that this reduces the sensitivity of IRAC1 at M.