visual inspection and setting of the images. The observations of the solar limb is done by take the sequence of the parallel arcs defined by the limb itself, since we do not any longer move the Wollaston bi-refringent that permit to compensate the movement on zenith distance. The comercial camara COHU, with a 699 × 580 pixels CCD chip, together with the comercial interface "CYCLOPE" makes possible to send the CCD images to the RAM of a PC 486 every $0^s.020$, synchronized with the time scale used by the "CHRONO" chip, produced in France. This way of observation makes possible to record 50 direct images and 50 reflected images during the Sun transit.

A filter to diminish the chromatic aberrations is used in order to cut the excess of red in the spectrum, so the pass band is rather close to the visual one.

The procedure of reducing the observations is just the same as the one used in the OCA. This project is part of the scientific co-operation between the Governments of France and Brazil.

CCD MERIDIAN OBSERVATIONS

P. Benevides-Soares [1], Y. Requieme [2], and R. Teixeira[1]

In the framework of an agreement between the Bordeaux and São Paulo observatories, a CCD micrometer, to be adapted to the transit circles of both institutes, was designed and constructed in Bordeaux. The first micrometer started initial tests in Bordeaux in 1994 and was moved to São Paulo in June 1995. The main technical features are the following: CCD Thomson 7895Am with 512 × 512 square 19 micron pixels. It is operated on the TDI mode, such that the charges are moved at the sidereal rate. This entails an integration time identical to the interval needed for a star image to cross the whole chip surface. The CCD is cooled down to −40 C, by means of a thermocouple system. The comparison of observations of the same field in successive nights shows that the positional accuracy is about 0.07″ in both coordinates, for the optimal magnitude range, i.e., V = 9 to 14. A more detailed analysis, which allows for slow variations of anomalous refraction, points to an intrinsic accuracy of 0.04″, limited by electronic and photon noise. It was also possible to compare observations of a field around 3C273, done at the two sites: from a 20-night series at Bordeaux and 10 at São Paulo, the final star positions showed an agreement of ± 0.05″ in both coordinates. The magnitudes in the instrumental band, which is close to the V band, are obtained to within 0.05. A second micrometer, with a larger 1024 × 1024 CCD chip, is presently under construction.

[1]Instituto Astronômico e Geofísico, Universidade de São Paulo, Brazil

[2]Observatoire de Bordeaux, France

REFINED LABORATORY IMAGES AND FLIGHT RESULTS OF THE HARD X-RAY CODED-APERTURE TELESCOPE TIMAX

Flavio D'Amico[1], João Braga[1], and Thyrso Villela[1]

We present refined laboratory images obtained with the TIMAX ("Telescópio Imageador de Raios-X") hard X-ray coded-aperture experiment. The images were produced by illuminating the detectors with 60 keV photons from a ^{241}Am radioactive source placed 45 m away from the detector plane, in the center of the field of view. We show the advantages of using a subtracting mask-antimask technique (combined with multiplicative flat-field techniques) to recover signal-to-noise ratio lost due to systematic non-uniformity in the background measured by the 35 NaI(Tl) detectors. The experiment was flown from the town of Birigüi, SP, Brazil, in June 8th, 1993 onboard a 186 000 m^3 stratospheric balloon, and remained at an atmospheric depth of $\sim$ 2 gm cm^{-3} for $\sim$ 8 hours. We show the sensitivity of the experiment, calculated using the measured background spectrum at balloon altitudes, and the capabilities of the experiment for obtaining 30-100 keV images of astrophysical source fields.

[1]Instituto Nacional de Pesquisas Espaciais, Brazil

SEARCH FOR ASTRONOMICAL SITES USING METEOROLOGICAL SATELLITE IMAGES

Jorge R. Ducati[1,3], Renan S. Leitão[2], and Francisco H.S. Magro[2,3]

In the context of a project to locate suitable sites for the installation of a new University telescope, we developed techniques to use images from meteoro-

[1]Observatório Astronomico, Universidade Federal do Rio Grande do Sul, Brazil

[2] Centro Estadual de Pesquisas em Sensoriamento Remoto e Meteorologia, Universidade Federal do Rio Grande do Sul, Brazil

[3] Instituto de Geociências, Universidade Federal do Rio Grande do Sul, Brazil