logical satellites. This permits to select preliminary places where more detailed "in situ" studies can be conducted. Our database was a set of 31 infrared images from the GOES-7 satellite, taken in the period Sep. 17 to Nov. 26, 1990. From previous studies using data from ground meteorological stations, we selected the regions near the towns of Vacaria, Caçapava, and Bom Jesus, in Rio Grande do Sul State, and São Joaquim, in Santa Catarina State, to be more closely scanned in the space images. Our primary goal was to correlate the quantitative parameter in a satellite image, which is the number of counts in each pixel, to the visibility of the soil, which is function of the cloud cover. A technique was developed to correlate the position of a pixel in the image, given by row and column coordinates, to geographical coordinates given by longitude and latitude. We considered that clouds covering 30% or less of the sky define satisfatory astronomical observing conditions; we noted, from ground data, that the value of 90 counts per pixel corresponds to the limit between nebulosities greater or smaller than 30%. This satisfies the satellite instrumental relations which correlate pixel counts to black-body temperatures, either from cloud top emission or from the unobstructed view of the soil. It is possible, in consequence, to infer the rate of cloud coverage, and time averages can be calculated. From the sample used, which covers the spring season in the southern hemisphere, there is a clear advantage to the region near Caçapava (30°29′ S, 53°28′ W, h = 550m). The methods developed in this study are currently being applied to a much bigger sample, covering a period in excess of one year.

HIGH RESOLUTION INFRARED IMAGING AT NOAO

Ronald G. Probst[1], Ian Gatley[1], K. Michael Merrill[1], Gerald B. Heim[2], and Nick Buchholz[2]

The infrared group at Kitt Peak National Observatory is conducting an experiment in diffraction limited infrared imaging at 3-4 microns. We have modified a facility IR camera to provide 0.1 arcsec per pixel sampling with a 256 x 256 InSb array on the KPNO 4-m telescope. In this wavelength regime, the high thermal background of the sky requires ~ 10 Hz frame rate to avoid detector saturation. This is fast enough to avoid the image blurring effects of atmosphere and telescope in individual frames. We preserve both the maximum resolution and the maximum sensitivity of the telescope by combining individual frames in real time with shift-and-add image processing, using an infrared reference point source in the field of view.

At L' (3.4–4.1 microns) the point spread function has a diffraction limited core with typical FWHM 0.26 arcsec and Strehl ratio 0.25, in conditions of mediocre to poor optical seeing (1.3–1.6 arcsec FWHM at 0.6 microns). This performance is highly uniform across the 25 arcsec field of view, with little dependence on source brightness, distance from reference point source, integration time, or centering algorithm. Performance comparisons at shorter wavelengths (K, 2.2 microns; and H, 1.6 microns) show a substantial reduction in the Strehl ratio under these seeing conditions. However, the fraction of total flux within 0.5 arcsec or larger apertures is nearly constant, independent of wavelength.

This instrument system is in use in a queue scheduled mode at KPNO during 1995–96, with all observing done by staff scientists. Science targets appropriate to observing conditions are chosen from the ranked list of proposals while the observations are in progress. At the conclusion of this experiment, the camera will be upgraded with a larger format detector and relocated to CTIO, where it will serve as the sensor in a two micron tip-tilt adaptive optics system on the CTIO 4-m. This will extend NOAO's capability for high angular resolution imaging to shorter wavelengths and the Southern Hemisphere.

[1]Kitt Peak National Observatory, National Optical Astronomy Observatories, USA

[2]Engineering and Technical Services Division, National Optical Astronomy Observatories

---

INSTALLATION OF THE "J.L. SERSIC" ASTRONOMICAL OBSERVATORY AT 78° SOUTH

Pablo Recabarren [1,2], Mirta Mosconi [1], Diego García Lambas [1,2], Juan Dellizzotti [3], Sheiko Ozu [3,4], and Julio Hutka [3]

The IATE Group of the Observatorio Astronómico from the Universidad Nacional de Córdoba, is developing a program of astronomical observations in Antarctica, with the logistic support of the IAA. Among Argentine permanent stations, we chose Belgrano Station at 78° S – 34° W due to their meteorological conditions, and astronomical

[1]IATE (Investigaciones en Astronomía Teórica y Experimental). Observatorio Astronómico de Córdoba, Argentina

[2]CONICET (Consejo Nacional de Investigaciones Científicas y Tecnológicas), Argentina

[3]IAA (Instituto Antártico Argentino)

[4]LIARA (Laboratorio Ionosférico de la Armada de la República Argentina)

darkness time. The main objective is to make systematic astronomical measurements in order to determine the sky quality for observational possibilities. The initial phase of the project will be carried out over three years; after analyzing the acquired data and results, we will establish future plans. The program includes: systematic seeing measurements, extinction coefficients, recording of weather conditions and auroral activity, testing of the instrumental support structure and telescope building, and photometric monitoring of Eta Carinae. We have installed a CG11 Celestron reflector telescope, an SBIG ST6 CCD camera with U,V,B,R,I and H alpha filters, computer controlled. The rough weather condition is the main source of trouble. The operation of the instrument is very hard because of the low temperature (−40C). It is very difficult to heat the environment without producing turbulences in the refuge. Several modifications, like localized thermal controls in some mechanical parts of the telescope, have been made. A thermoelectrical controlled clothing was developed for the observer. The obtained data will be processed and analyzed in the Observatorio Astronómico de Córdoba.

The funds have mainly come from CONICET, CONICOR and the logistical support from IAA.

LIST OF ABSTRACTS

STAR FORMATION

STELLAR EVOLUTION