Conclusion

For prime focus and Cassegrain focus, acquisition of visible objects, as a rule, is better than 10″. All stars during the above-mentioned tests were acquired within 20″, covering a sky area 5 hours east to 5 hours west in right ascension and from −85° to +25° in declination.

For invisible objects, a visible pointing calibrator and off-set coordinates for acquisition of the invisible object must be used. The invisible object can then be acquired with an accuracy of ± 1.5 arcsec in right ascension and ± 1 arcsec in declination, which is the resolution of the telescope encoders.

For infrared observations, scanning an area of 10 x 10 $arcsec^2$ will, as a rule, acquire the object. Scanning an area of 20 x 20 $arcsec^2$ may sporadically be necessary.

Off-set may be desirable for very faint objects, where object acquisition may require a long integration time. It goes without argument that off-set coordinates should be calculated in day time and that the observer knows the coordinates of his object accurately for a certain equinox to enable the calculation of the apparent places.

Future Pointing Investigations

A programme for data reductions has been prepared by K. Teschner, programmer of the TRS. This enables the fast calculation of the telescope coefficients from new pointing data.

A plotting programme to visualize the residual errors is being prepared, which may guide the decisions on pointing improvements. Recently, J. Lub (ESO astronomer) has joined in the pointing activity at the 3.6 m telescope. The limiting pointing accuracy is set by the hysteresis effects of the telescope, to which the reaction arms in right ascension and declination contribute largely, being respectively, ± 7 and ± 5 arcsec.

The ESO 1 m Schmidt Telescope Equipped with a Racine Wedge

André B. Muller, ESO

Since November 1980 a Racine wedge can be used in photometric programmes with the ESO Schmidt telescope.

Optical Data

The wedge has an aperture of 144 mm, a thickness of 10 mm and is made of UBK 7 glass. The effective surface of the Schmidt corrector plate, taking into account the vignetting of the wedge, the plateholder device and the spider arms, is 5745 cm^2. Therefore, the magnitude difference Δm between direct image and wedge image, taking into account 8% light loss due to the wedge reflection, is $3^{m}.96$. The magnitude range can be enlarged using diaphragms in front of the wedge. Design and construction of the wedge support were done at La Silla (J. van der Ven and W. Vanhauwaert).

The wedge was optically tested in Geneva (M. Le Luyer and M. Wensveen). The transmission is

30% at λ = 300 nm
50% at λ = 308 nm
70% at λ = 318 nm
90% at λ = 375 nm
92% at λ = 700 nm

The 8% light loss is due to the reflections at the two uncoated surfaces. The F/D for the wedge beam is 21.2 producing an airy disk at the best focus of 1.5 arcsec diameter at λ = 420 nm.

The wedge causes a defocusing of 1 mm in the focal plane of the Schmidt telescope which, for F/D = 21.2, gives a spread of 47 microns or 3 arcsec. The image is perfect as was found from interferometric tests.

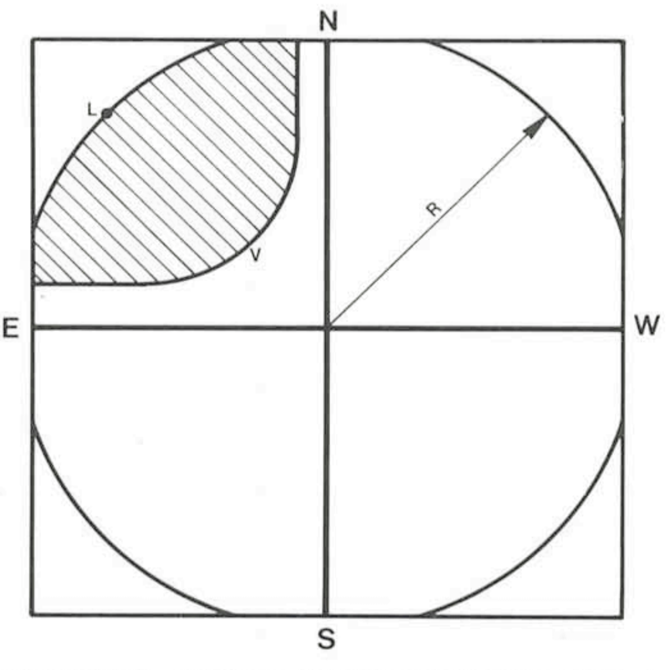
The refracting angle of the wedge is 60 arcsec resulting in an angular separation between the main beam and the wedge beam of 31″ or about 0.5 mm on the photographic plate.

Vignetting

The Racine wedge is mounted directly in front of the corrector plate in the north-east corner. Mounting or demounting the wedge is a matter of minutes.

Although somewhat better vignetting conditions exist by mounting the wedge in the focal plane on the plateholder device, this possibility was abandoned for reasons of mechanical stability of the plateholder device.

The exposed area of the Schmidt plate is 290 × 290 mm^2. The drawing shows the critical radius R of the unvignetted area

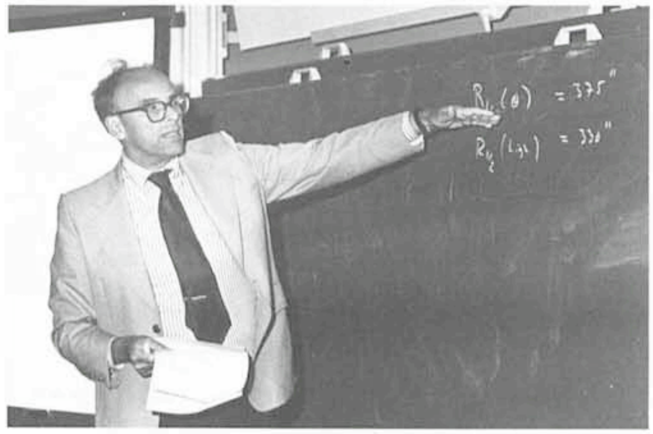


of the plate. R = 154.9 mm. This means that for stars situated on the circle with this critical radius, the projection of the corrector plate on the mirror in the direction of the incident parallel beam is tangent to the circumference of the mirror. Stars outside this circle in the four plate corners are vignetted and cannot be used for photometry without special plate corrections.

The plateholder device and the spider arms obstruct 24.1% of the incident parallel beam. As the dimension of this obstruction is much smaller than that of the corrector plate, its shadow on the mirror is well within the projection of the corrector plate on the mirror. The vignetting due to this obstruction is, therefore, constant within the plate area with radius R and has no photometric consequences. However, the position of this obstruction with respect to the corrector-plate beam is not fixed and moves as a function of the angle of incidence of this beam. As a consequence, in certain directions the plateholder device causes vignetting of the beam passing through the wedge. This is unavoidable for large-field cameras. The shadowed area in the drawing indicates the area of wedge vignetting. The vignetting starts along the line V and reaches its largest value at point L where it amounts to about $0^{m}5$. However, about 85 % of the plate is undisturbed by it. A detailed report on the wedge vignetting is being prepared and will be available within short.

After an interruption of a few weeks, due to the move from Geneva to Garching, scientific life soon started again at ESO. The first seminar took place on October 7; Dr. Sidney van den Bergh from the Dominion Astrophysical Observatory at Victoria, Canada, was talking about "NGC 5128 and its globular clusters". ▶

Después de una interrupción de algunas semanas, debida al traslado de Ginebra a Garching, se ha reanudado la vida científica en ESO. El primer seminario se celebró el 7 de octubre pasado; el doctor Sidney van den Bergh, del Dominion Astrophysical Observatory, en Victoria, Canadá, habló sobre "NGC 5128 y sus cúmulos globulares".



The Image Processing System is working again in the new building.
El Sistema de Tratamiento de Imágenes está de nuevo funcionando, en un edificio nuevo. ▼

ALGUNOS RESUMENES

Cartografía del cielo austral con el telescopio de Schmidt de 1 metro

El "Palomar Observatory Sky Survey" es un medio auxiliar bien conocido y útil para los astrónomos. Todo el cielo del hemisferio Norte está captado en fotografías, cuyas reproducciones se encuentran archivadas en las bibliotecas de casi todos los observatorios importantes del mundo.

Tal colección de fotografías le permite ver al astrónomo qué clase de objetos se hallan en el cielo, y le permite hacer una selección de los objetos que pretende estudiar en detalle.

Dos telescopios se están dedicando ahora a producir un atlas similar del hemisferio celeste austral. Trátase del telescopio de Schmidt del Reino Unido, instalado en Australia, y del telescopio de Schmidt de 1 metro, instalado en La Silla. La trabajosa tarea se ha repartido de modo que los dos mencionados telescopios están produciendo mapas del cielo de diferentes colores. ESO está elaborando un mapa partiendo de fotografías tomadas en el rojo. El tiempo de exposición para cada placa es de 2 horas, y se tardará unos 5 a 6 años para completar los 606 sectores que cubren el cielo desde la declinación −17°.5 hasta el polo celeste Sur. El proceso de producción de las 606 placas originales que se necesitan, y que es preciso copiar par su posterior distribución, es una labor bastante difícil y larga. Cualquier rasguño o mancha en la emulsión, cualquier falta en el revelado, una ruptura de placas, errores de guiado durante la exposición, etc., son ejemplos de las dificultades que pueden presentarse y hacer que una placa sea inservible para la reproducción.

Una tarea igualmente difícil y llena de complicaciones es el proceso de reproducción que se está realizando en Garching, con la finalidad de obtener, de un buen original, copias de buena calidad y en la cantidad