PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY A MATHEMATICAL, PHYSICAL & ENGINEERING SCIENCES

Preliminary Results of Absolute u.v. Rocket Photometry of $\gamma $ Ori

H. Hessberg, J. Niekerke and K.-H. Stephan

Phil. Trans. R. Soc. Lond. A 1975 **279**, 457
doi: 10.1098/rsta.1975.0081

Phil. Trans. R. Soc. Lond. A. **279**, 457 (1975) [457]
Printed in Great Britain

Preliminary results of absolute u.v. rocket photometry of γ Ori

By H. Hessberg, J. Niekerke and K.-H. Stephan
Max-Planck-Institut für Extraterrestrische Physik, D–8046 Garching-München, Germany

In autumn 1973 the star γ Ori (B2 III, m_v = 1.64, HD 35468) was measured with two rocket-borne photometers in the wavelength region from 1100 to 3000 Å. The bandwidth was 100 and 200 Å respectively. The photometers were calibrated with black-body radiation.

The photometers, developed by the late G. Boldt and co-workers, had collecting mirrors of 22 cm diam. Three e.m.r.-photomultipliers recorded the light dispersed by a stepwise moved grating. Three channels with partly overlapping wavelength regions were thus defined. During flight, up to 11 continuously repeated measuring cycles had been recorded via telemetry. Those free from absorption and night-glow influences were taken for evaluation.

Each instrument had been calibrated twice before launch inside vacuum calibration equipment. An active blackbody calibration was used (Boldt 1968, 1970) with an argon cascade arc as light source that had been doted with additional gases to produce optically thick lines. The light was dispersed by a McPherson monochromator and an inverted Cassegrain telescope produced a beam of parallel light of 30 cm diameter.

Preliminary evaluation of the flight data shows fair agreement with previous measurements from other authors of wavelength longer than 2000 Å. Shortward of 2000 Å there are differences. Between 2000 and 1500 Å present photon fluxes are above the values of Evans (1972). Below 1500 Å the present fluxes are partly considerably lower than previously measured fluxes. Comparison with model calculations of Mihalas (1972) longward 1700 Å indicates an effective temperature near 25000 K. Relative accuracy as derived from coincidence of different channels of both payloads is of the order of 10 %. Absolute uncertainties have not yet been established finally.

References (H. Hessberg *et al.*)

Boldt, G. 1968 ESRO SP-33, 45.
Boldt, G. 1970 *Space Sci. Rev.* **11**, 728.
Evans, D. C. 1972 NASA SP-310, 347.
Mihalas, D. 1972 Technical Note NCAR-TN/STR-76, Nat. Center Atm. Res., Boulder.