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ECLIPSE TIMINGS OF 31 CYGNI

Photoelectric UBV observations of the 1982 total eclipse of 31 Cygni were obtained with the Hopkins-Phoenix Observatory 20-cm telescope and Braeside Observatory 41-cm telescope. Differential magnitudes, relative to 30 Cygni, were found by differencing the reduced all-sky photometry of each star. Mean extinction and transformation coefficients, appropriate for each instrument, were used in the calculations.

Following the suggestion of Herzeg (1956), the time t_{50} when 50% of the secondary's light is transmitted (through the outer atmosphere of the primary) provides a more accurate description of immersion or emersion than conventional timings of the four contact points. The duration of eclipse is the time interval between ingress and egress t_{50} times, the time of mid-eclipse, t_{mid} , is the mean of ingress and egress t_{50} times. Although t_{50} is wavelength dependent, t_{mid} is assumed to be wavelength independent (see Stencel et al. (1983) for details). Results of

Table I

For 1982 Eclipse:	U Filter	B Filter
Ingress t_{50}	JD 2445222.30 \pm 0.13	JD 2445222.89 \pm 0.13
t_{mid}	JD 2445254.39 \pm 0.13	JD 2445254.39 \pm 0.13
Egress t_{50}	JD 2445286.48 \pm 0.13	JD 2445285.89 \pm 0.13
Duration of Eclipse (days)	64.18 \pm 0.18	63.00 \pm 0.18

For 1962 Eclipse:		
Ingress t_{50}	JD 2437653.78 \pm 0.21	JD 2437654.28 \pm 0.21
t_{mid}	JD 2437685.72 \pm 0.21	JD 2437685.72 \pm 0.21
Egress t_{50}	JD 2437717.66 \pm 0.21	JD 2437717.16 \pm 0.21
Duration of Eclipse (days)	63.88 \pm 0.30	62.88 \pm 0.30

these calculations and of similar calculations for the 1962 total eclipse using Copenhagen University Observatory data (Gyldenkerne and Johansen 1970) are given in Table I, where Julian Dates include heliocentric time corrections. Timings for the V filter are not derived because the scatter of data is significant compared to the depth of eclipse.

The mean duration of eclipse is 64.03 ± 0.17 days in U and 62.94 ± 0.17 days in B. The mean period of 31 Cygni, over two cycles, is 3784.34 ± 0.12 days.

PAUL C. SCHMIDTKE
Kitt Peak National Observatory
P.O. Box 26732
Tucson, Arizona 85726 USA

JEFFREY L. HOPKINS
Hopkins-Phoenix Observatory
7812 West Clayton Drive
Phoenix, Arizona 85033 USA

ROBERT E. FRIED
Braeside Observatory
P.O. Box 906
Flagstaff, Arizona 86002 USA

ROBERT E. STENCEL
Code EZ-7
NASA Headquarters
Washington, DC 20546 USA

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