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TIMES OF MINIMA OF ECLIPSING BINARIES

SANDBERG LACY, CLAUD H.; HOOD, BEN; STRAUGHN, AMBER

Department of Physics, University of Arkansas, Fayetteville, Arkansas 72701, USA

We report times of minima of eclipsing binary stars derived from V-band photometric observations made by an automated observatory at the University of Arkansas (the URSA telescope). The URSA telescope is a 10-inch aperture Meade LX-200 $f/6.3$ with an SBIG ST8EN CCD camera (before 2000 September 1, an SBIG ST6 camera was used). Observations were made through a Bessel V filter. The observations were 60 seconds integrations followed by 30 seconds as the image was downloaded and stored on the control computer. Images were dark-subtracted and flat-fielded before being processed by a virtual measuring engine (manual measurements were made before 2000 November 14). Differential magnitudes were measured relative to a comparison star and a check star in the same $20' \times 30'$ frame. Constancy of the comparison stars on a time scale of months has been verified by comparisons with a third comparison star in the field. Pixel size was 1.15 arcsec^2. For each variable star, the ultimate measurement accuracy for differential magnitude measurements depends on the availability of suitably bright comparison stars within the same image, which is $30'$ wide E–W and $20'$ wide N–S. This ultimate accuracy can range from $0\overset{\mathrm{m}}{.}004$ to $0\overset{\mathrm{m}}{.}02$ for our program stars. Additionally, we sometimes observe through thin cirrus. This can double the standard errors. A sample of the observations is shown in Figure 1. Heliocentric times of minima were estimated by using the method of Kwee and van Woerden (1956) as adapted to a Macintosh computer. Uncertainties in the times of minima were estimated from the values of standard error computed by the method. In Table 1, primary eclipses are designated as type 1 eclipses, and secondary eclipses as type 2.

Table 1

Star	JD of Min − 2400000		Type of Eclipse
KP Aql	51751.6264	± 0.0005	1
WW Cam	51474.7295	± 0.0006	2
AY Cam	51919.8679	± 0.0005	1
	51974.5666	± 0.0006	1
	51989.60769	± 0.00014	2
	52015.5921	± 0.0005	1
IT Cas	51826.6876	± 0.0010	1
MU Cas	51876.5835	± 0.0004	1
V459 Cas	51863.63570	± 0.00014	1
	51867.7992	± 0.0005	2
	51918.5502	± 0.0004	2
WW Cep	51739.7305	± 0.0014	2
	51868.55092	± 0.00015	2
	51914.5600	± 0.0004	2
RT CrB	51993.8053	± 0.0011	2
RW CrB	51931.9083	± 0.0003	1
	51936.9931	± 0.0004	1
	51982.7572	± 0.0004	1
	52011.8148	± 0.0004	1
	52023.8029	± 0.0004	2
	52024.8899	± 0.0003	1
V477 Cyg	51720.7450	± 0.0004	1
V885 Cyg	52025.8414	± 0.0006	2
V1061 Cyg	52015.90554	± 0.00011	1
UZ Dra	52017.86742	± 0.00012	2
DI Her	51757.7215	± 0.0013	2
RW Lac	51750.6943	± 0.0006	2
RU Mon	51862.9000	± 0.0003	1
TY Tau	51582.6638	± 0.0007	1
	51862.7781	± 0.0005	1
	51868.7074	± 0.0005	2
	51869.7830	± 0.0004	2
	51875.7080	± 0.0002	1
	51876.7850	± 0.0004	1
	51877.8624	± 0.0003	1
	51882.7130	± 0.0004	2
	51883.7900	± 0.0006	2
	51924.7290	± 0.0010	2
	51931.7309	± 0.0004	1
	51943.5824	± 0.0005	1
	51951.6609	± 0.0007	2
	51985.6011	± 0.0003	1
CF Tau	51919.7246	± 0.0005	2
	51966.5772	± 0.0007	2

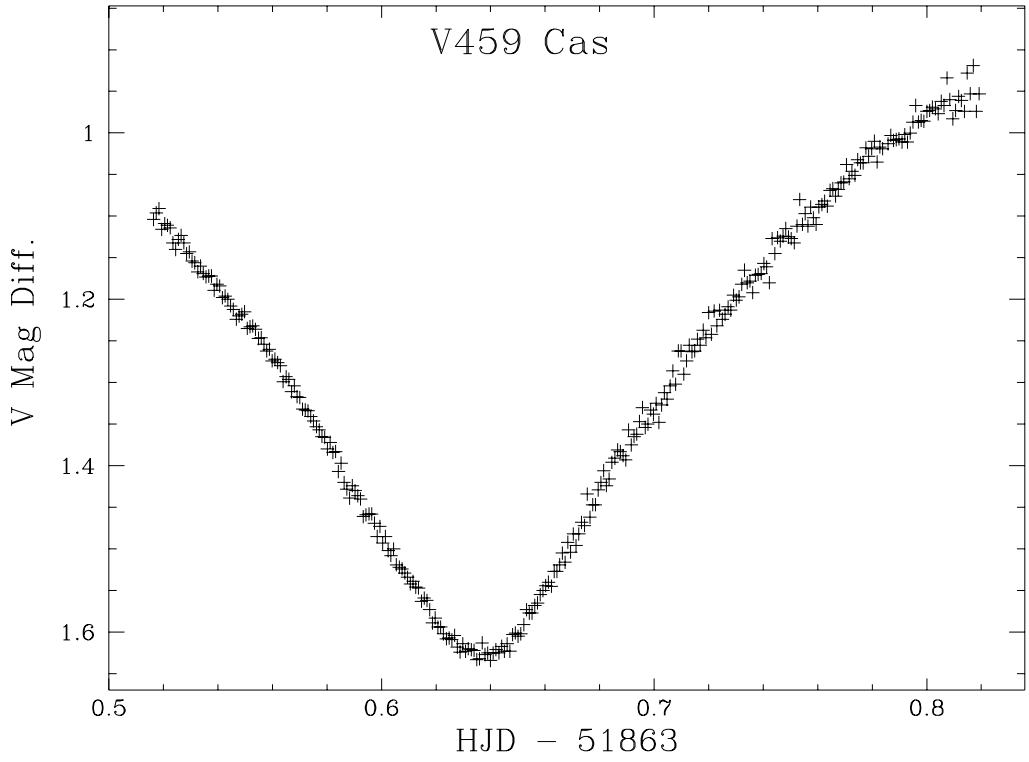

Figure 1. A sample observation of a primary eclipse on 2000 November 15 UT. Approximately the last half of the observations were made through thin cirrus clouds. Note that the standard error of the observations was larger then

Reference:

Kwee, K.K., and van Woerden, H., 1956, *BAN*, **12**, 327