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PHOTOELECTRIC MINIMA TIMES OF THE ECLIPSING
 VARIABLES AB ANDROMEDAE, 44i BOOTIS AND GO CYGNI

The aim of the present report is to give the photoelectric minima times of AB And, 44i Boo and GO Cyg obtained from our observations made either at the Kryonerion Astronomical Station or at the Bucharest Observatory.

The photoelectric observations of AB And were made during 1990 with the two-beam, multi-mode, nebular-stellar photometer of the National Observatory of Athens, Greece, attached to the 48-inch Cassegrain reflector at the Kryonerion Astronomical Station. While those of 44i Boo and GO Cyg were made during 1989, 1990 and 1993 with an EMI 9502 B type photocell, attached to the 50 cm telescope of the Bucharest Observatory.

The filters used are in close accordance with the standard UBV and the reduction of the observations has been made in the usual way (Hardie, 1962).

From our observations 5 new minima times were derived for AB And, 6 for 44i Boo and 3 for GO Cyg, which are presented in Tables I, II and III, respectively. The times of minima as well as the mean errors σ have been computed using Kwee and Van Woerden's method (1956).

Table I
 Photoelectric minima times of AB And

Hel. JD	(O-C) _I days	(O-C) _{II} days	(O-C) _{III} days	σ	Obs
2440000.+					
8173.3591	0.0734	0.0327	-0.0020	0.0003	R&R
8174.3509	0.0695	0.0289	-0.0059	0.0005	R&R
8176.3420	0.0693	0.0286	-0.0061	0.0006	R&R
8176.5104	0.0717	0.0310	-0.0037	0.0004	R&R

where the residuals (O-C)_I, (O-C)_{II} and (O-C)_{III} have been calculated according to the following ephemeris formulae:

$$\text{Min I} = 2425502.11989 + 0^d 331886486 \times E$$

(Oosterhoff, 1950)

$$\text{Min I} = 2436109.578 + 0^d 33189122 \times E$$

(Kukarkin et al., 1969)

and

$$\text{Min I} = 2436109.57928 + 0^d 33189215 \times E$$

(Kholopov et al., 1985)

and they are the mean values of our B and V observations. From the O–C values, given in Table I for AB And, it is obvious that its period continues to change. A detailed study of its behaviour will appear elsewhere (Rovithis-Livanou et al., 1994).

Table II
Photoelectric minima times of 44i Boo

Hel. JD	(O–C) _I days	(O–C) _{II} days	(O–C) _{III} days	σ	Obs	Filter
2440000.+						
9099.4042	0.0345	0.0015	–0.0159	0.0003	D	V
9149.3581	0.0406	0.0074	–0.0102	0.0021	D	U
9149.3664	0.0489	0.0157	–0.0018	0.0006	D	V
9159.4094	0.0487	0.0156	–0.0021	0.0010	D	U
9162.3508	0.0442	0.0110	–0.0066	0.0006	D	U
9162.3503	0.0436	0.0105	–0.0072	0.0005	D	V
9168.3732	0.0408	0.0075	–0.0102	0.0007	D	U
9168.3729	0.0405	0.0072	–0.0105	0.0008	D	B
9168.3740	0.0416	0.0083	–0.0094	0.0006	D	V
9177.3478	0.0435	0.0102	–0.0076	0.0005	D	U
9177.3482	0.0439	0.0106	–0.0071	0.0007	D	B
9177.3479	0.0436	0.0103	–0.0075	0.0005	D	V

For 44i Boo the residuals (O–C)_I, (O–C)_{II} and (O–C)_{III} have been computed using the following ephemeris formulae, respectively:

$$\text{Min I} = 2439852.4903 + 0^d 2678159 \times E$$

(Duerbeck, 1975)

$$\text{Min I} = 2439852.4644 + 0^d 2678176 \times E$$

(Rovithis et al., 1990)

and

$$\text{Min I} = 2443604.5880 + 0^d 26781856 \times E$$

(Oprescu et al., 1989)

Since the O–C values for 44i Boo were found to be quite different for the various filters used, in Table II we give them separately and not a mean value, as we did in the case of AB Andromedae.

Table III
Photoelectric minima times of GO Cyg

Hel. JD	(O–C) _I days	(O–C) _{II} days	(O–C) _{III} days	σ	Obs
2440000.+					
7802.3114	0.0255	0.0444	0.0116	0.0003	O&D
8176.2725	0.0221	0.0399	0.0060	0.0011	O&D
8180.2689	0.0307	0.0482	0.0146	0.0012	O&D

In the case of GO Cygni the residuals $(O-C)_I$, $(O-C)_{II}$ and $(O-C)_{III}$ have been computed according to the following ephemeris formulae, respectively:

$$\text{Min I} = 2446351.328 + 0^d 717763 \times E$$

(SAC, 1992)

$$\text{Min I} = 2433930.40561 + 0^d 71776382 \times E$$

(Kholopov et al., 1985)

and

$$\text{Min I} = 2445865.4056 + 0^d 71776707 \times E$$

(Sezer et al., 1985)

and they are the mean values of our B and V observations. A detailed study of the period behaviour of GO Cygni will be made later on.

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P. ROVITHIS and
H. ROVITHIS-LIVANIOU
Astronomical Institute,
National Observatory of Athens
P.O. Box 20048
Athens, 11810
Greece

G. OPRESCU
A. DUMITRESCU and
D. M. SURAN
Institutul Astronomic
Academia Romana
75212 Bucuresti 28
Romania

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