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NEW INFORMATION ON V 558 Cas: TYPE AND PERIOD

New photoelectric measurements show that V558 Cas is likely an EB-type eclipsing binary varying from magnitude 8.70 (V) to 8.91 (V) with a period of approximately 3.16 days. The variability of V558 Cas = HD 12762 was discovered by Strohmeier et al. (1962) using the photographic plates from Bamberg. The star was mentioned as an eclipsing star of magnitude 8.1 (p) with an amplitude of $0\overset{m}{.}6$ and A-type spectrum. In 1969 and 1970, at the Lund observatory, Bern et al. (1971) measured the star photoelectrically. They catalogued it ranging from $8\overset{m}{.}7$ to $8\overset{m}{.}9$ in V with B−V colour index of 0.72 and U−B colour index of 0.21. They simply confirmed the variability of the star. In the GCVS (Kholopov et al., 1985), V558 Cas is listed as an eclipsing star (E) varying from 9.0 to 9.6 (B) with an A to F spectrum.

32 new photoelectric measurements of V558 Cas (see Table 1) were obtained during several GEOS missions, at the Jungfraujoch station, with the photometer equipped with filters of the Geneva system, attached to the 76-cm telescope. These measurements were carried out from December 1992 to August 1995. These data confirm the results published by Bern et al. (1971): the star varies from 8.70 to 8.91 in V with almost constant B−V colour index of 0.70.

Period search was performed using four different methods. The theta statistic function of Renson (1978) gave the best results due to the limited set of measurements, the low amplitude and the shape of the light curve.

For the light curve (Figure 1), the epoch was chosen close to the instant of dimmest magnitude and adjusted using a spline function:

$$\mathrm{Min\,I} = \mathrm{HJD}\,2448978.706 + 3.1605 \times \mathrm{E}$$

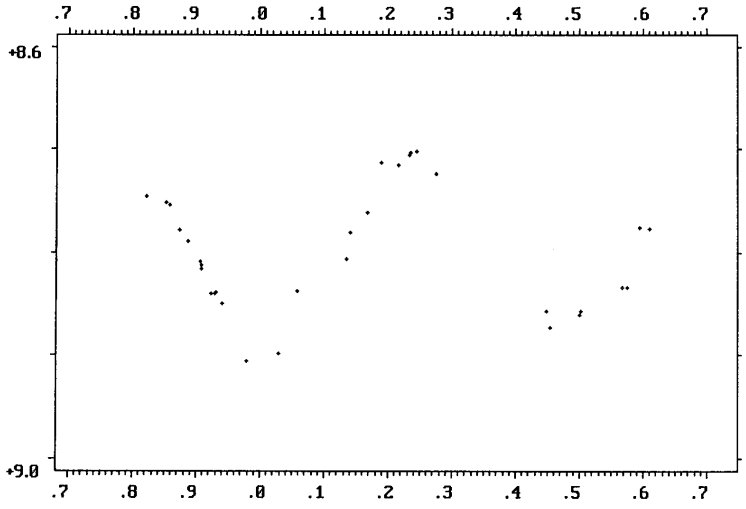

Figure 1. Folded light curve with 32 measurements in V of V558 Cas

Table 1. New photoelectric measurements of V558 Cas

HJD (2400000+)	V	$(B-V)_G$
48620.2904	8.775	−0.110
48620.3390	8.776	−0.099
48621.2834	8.815	−0.113
48621.3320	8.839	−0.112
48621.3494	8.839	−0.119
48621.3834	8.849	−0.113
48622.3104	8.705	−0.117
48622.3438	8.701	−0.122
48623.3673	8.833	−0.126
48623.3916	8.833	−0.115
48624.2652	8.751	−0.118
48624.2819	8.753	−0.116
48624.3305	8.777	−0.121
48978.4178	8.811	−0.114
48978.6400	8.905	−0.096
48981.3038	8.745	−0.126
48981.5093	8.789	−0.106
48981.5697	8.808	−0.095
48981.6496	8.838	−0.071
48982.3135	8.780	−0.118
48982.3989	8.760	−0.120
48982.5509	8.714	−0.102
48982.6086	8.703	−0.092
48983.3051	8.872	−0.128
49721.5158	8.897	−0.113
49721.6082	8.837	−0.091
49722.2950	8.723	−0.126
49807.3544	8.712	−0.096
49810.3442	8.806	−0.096
49811.3337	8.856	−0.119
49950.5604	8.860	−0.119
49950.5680	8.856	−0.111

with primary minimum at 8.91 (V) and secondary one at 8.87 (V), the shape of the light curve looks like the EB type.

Jacqueline VANDENBROERE
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