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PU VULPECULAE (OBJECT HONDA - KUWANO 1979) - 78.1 DAYS PERIOD

Two outbursts of PU Vul were observed in 1979 and 1981. Photometric history of the object is being published by Chochol and Grygar (1982) and Belyakina et al. (1982). Duration of the flat maximum of brightness was 340 days during the first outburst. The average V magnitude of PU Vul was  $8.9^m$  at that time.

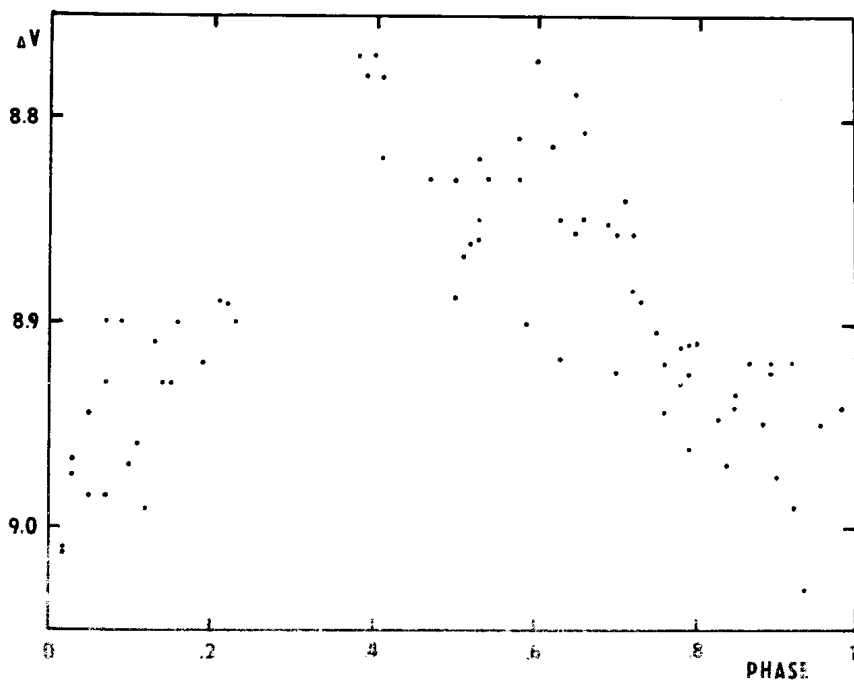


FIGURE 1

Table I  
Data for PU Vul and comparison stars

Star	Catalogue number	R.A. 1950	DEC. 1950	V	B-V	U-B	Spectrum
Comparison 1	HD 194 011	20 <sup>h</sup> 20 <sup>m</sup> 22 <sup>s</sup> .3	21° 38' 43".7	8.31	1.26	1.14	K 0
Comparison 2	HD 193 859	20 <sup>h</sup> 19 <sup>m</sup> 38 <sup>s</sup> .1	21° 14' 33".0	8.22	-0.04	-0.46	A 0
Check 1	HD 193 706	20 <sup>h</sup> 18 <sup>m</sup> 48 <sup>s</sup> .8	21° 21' 29".2	7.84	1.64	1.98	K 5
Check 2	BD 21° 4165	20 <sup>h</sup> 18 <sup>m</sup> 37 <sup>s</sup> .9	21° 23' 42".6	9.23	0.57	-0.01	
PU Vul		20 <sup>h</sup> 19 <sup>m</sup> 01 <sup>s</sup> .1	21° 24' 43".1	8.9 *	0.55 *	0.40 *	

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\* average values during the maximum brightness in 1979

Table II  
U,B,V, observations of PU Vul

HJD	Phase	V	n	B	n	U	n	Observatory
2440000+								
4008.55	0.834	8.947	5	9.463	5	9.818	5	SP
4009.53	0.847	8.969	5	9.461	5	9.825	10	SP
4010.41	0.858	8.935	5	9.490	5			SP
4014.52	0.911	8.975	12	9.48	17	9.355	17	B
4016.48	0.936	8.99	24	9.485	15	9.87	4	B
4023.53	0.026	9.012	5	9.526	5	9.954	5	SP
4023.55	0.026	9.01	10	9.52	6	9.94	3	B
4024.51	0.038	8.975	16	9.49	19	9.89	8	B
4025.50	0.051	8.985	28	9.51	22	9.87	17	B
4027.56	0.077	8.985	13	9.50	10	9.905	11	B
4029.49	0.102	8.970	5	9.505	5	9.956	5	SP
4088.46	0.857	8.942	1	9.472	1			SP
4116.37	0.214	8.890	15	9.460	15	9.957	15	SP
4117.39	0.227	8.891	19	9.462	19	9.953	19	SP
4146.32	0.598	8.901	5	9.539	5	10.040	6	SP
4149.36	0.637	8.918	29	9.540	29	10.072	30	SP
4154.28	0.700	8.925	3	9.55	4	10.10	4	B
4156.32	0.726	8.885	5	9.55	2	10.07	3	B
4157.31	0.738	8.89	3	9.55	5	10.075	4	B
4158.31	0.751	8.905	3	9.60	3	10.10	3	B
4159.29	0.764	8.944	22	9.627	22	10.20	22	SP
4161.32	0.790	8.925	9	9.64	4	10.18	5	B
4161.38	0.790	8.962	10	9.648	10	10.274	10	SP
4162.34	0.803	8.91	4	9.62	3	10.13	3	B
4169.34	0.892	8.95	5	9.62	6	10.13	6	B
4170.38	0.906	8.925	2	9.62	3	10.14	2	B
4173.38	0.944	9.03	2	9.66	3	10.12	2	B
4185.31	0.097	8.90	8	9.59	5	10.14	3	B
4210.24	0.416	8.78	4					B

We observed PU Vul photoelectrically with 0.6 m telescopes of Skalnaté Pleso (SP) and Brno (B) observatories in the year 1979. The data for comparison stars and PU Vul are in Table I. Magnitudes and colours were determined by us. Our U,B,V, observations of PU Vul are in Table II. Every value represents the average from observations made in one night. A letter n designates number of individual observations included.

In view of the fact that variations in brightness with amplitude  $0.26^m$  in V were found, we tried to find the period of variations. We have included photometric observations during the flat maximum in the year 1979 made by Mahra et al. (1979), Margrave (1979), Mims (1979), Whitney (1979), Zissell (1979), Bruch (1980) and Belyakina et al. (1982) into our analysis. Observations made by Nakagiri and Yamashita (1980) were not in-

cluded, because of large scatter. The computing code for period search Hec 18 (Harmanec, 1981) and code of Zverko (1981), which are based on Morbey's method (Morbey, 1978), were used to find the period. The best period is 78.12 days. The ephemeris is as follows:

$$\text{JD (Min)} = 2443943.39 + 78^{\text{d}}.12 \times \text{E}. \quad (1)$$

Phase in Table II is computed according to this ephemeris. As it is possible to see on the phase diagram of PU Vul (Fig. 1), the primary and secondary minima are well seen on the light curve. Chochol and Grygar (1982) propose binary model "down scaled" symbiotic to explain photometric and spectroscopic behaviour of PU Vul.

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