

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS

Number 2071

Konkoly Observatory
Budapest
1982 January 13
HU ISSN 0374-0676

PHOTOELECTRIC UBV OBSERVATIONS OF PU Vul IN 1981

This star was found to be variable independently by Honda (1979) and Kuwano (1979) and described as a nova-like object. The object started to brighten near the end of 1977 with a gradient of about $0^m.01 \text{ day}^{-1}$, reached a plateau after increasing its brightness by approximately 5^m in early 1979, and remained almost constant until the end of that year. Then it faded rapidly at a rate of up to $0^m.025 \text{ day}^{-1}$, reaching about 14^m in autumn 1980 (Honda et al., 1979, Nakagiri and Yamashita, 1980, Mattei, 1981). Immediately thereafter the object started to brighten again (Verdenet, 1981, Purgathofer and Schnell, 1981) but much faster than in 1978, up to $0^m.025 \text{ day}^{-1}$, reaching a new plateau in October 1981, somewhat higher than the previous one in 1979. Since then PU Vul seems to be about "constant" again.

The present observations were obtained with the new 24 inch RC reflector of the Figl-Observatory, Vienna, Austria, using a single channel photometer attached to the broken Cassegrain focus. This photometer is equipped with EMI 9844 multiplier tube, standard UBV filters (Corning), d.c. amplifier and potentiometer recorder. The observations cover the period from May 8 to December 28, 1981. We used BD +21⁰4165 = SAO 88548 (star A) as main comparison star (Mahra et al., 1979), since it is very close to the variable (less than 6 arc min) and of sufficiently similar colour. In 16 nights we also observed BD +20⁰4533 = SAO 88573 (star B). Within the observing period the difference in V between star A and B was constant to within $0^m.014$ s.d. The measured mean difference between these two stars together with a single intercomparison to BS 7678 and BS 7724 suggests a zero point error for star A of + $0^m.09$.

Table I

UT 1981	JD 2444000	V	B - V	U - B
05 8,07	732,57	$9^m,89 \pm 0,02$	$0^m,79 \pm 0,01$	$0^m,51 \pm 0,01$
10,04	734,54	9,78 1	0,81 1	0,47 1
19,00	743,50	9,62 1	0,82 1	0,55 1
21,03	745,53	9,61 1	0,82 1	0,53 2
06 3,00	758,50	9,39 1	0,84 1	0,54 1
12,00	767,50	9,16 1	0,83 1	0,55 1
27,93	783,43	8,98 1	0,80 1	0,54 1
07 1,92	787,42	8,95 1	0,80 1	0,57 1
4,97	790,47	8,91 1	0,80	
6,03	791,53	8,88		
23,93	809,43	8,71 1	0,77 1	0,58 1
30,92	816,42	8,67 2	0,71 3	0,58 3
31,89	817,39	8,66 1	0,72 1	
08 5,89	822,39	8,68 1	0,71 1	0,55 1
6,89	823,39	8,66 1	0,72 1	0,55 1
7,99	824,49	8,64 1	0,70 1	0,54 1
8,90	825,40	8,63 1	0,71 1	0,54 1
13,88	830,38	8,63 1	0,70 1	0,55 2
18,90	835,40	8,60 1	0,70 1	0,55 1
22,84	839,34	8,61 2		
30,87	847,37	8,63 1	0,73 2	0,56 2
09 4,83	852,33	8,62 1	0,72 1	0,56 2
5,84	853,34	8,61 1	0,71 1	0,54 1
6,84	854,34	8,61 1	0,72 1	0,54 1
7,82	855,32	8,60 0	0,72 1	0,53 1
8,81	856,31	8,60 0	0,71 1	0,53 1
21,83	869,33	8,57 1	0,71 1	0,51 2
22,80	870,30	8,57 1	0,70 1	0,51 1
26,84	874,34	8,51 3	0,70 3	0,49 2
10 4,83	882,33	8,52 3		
5,83	883,33	8,50 2	0,69 4	0,49 4
6,84	884,34	8,53 2	0,69 3	
9,75	887,25	8,53 0	0,70 1	0,53 1
18,72	896,22	8,59 0		
20,82	898,32	8,59 1	0,74 1	0,55 1
25,80	903,30	8,61 1	0,74 1	0,55 1

Table I cont.

UT 1981	JD 2444000	V	B - V	U - B
11 4,72	913,22	8,60	1	0,70
17,88	926,38	8,60	1	
22,74	931,24	8,61	4	
23,81	932,31	8,59	1	0,68
12 21,77	960,27	$8^m,59 \pm 0,01$		
27,69	966,19	8,63	7	$0,72 \pm 0,09$
28,72	967,22	8,61	1	$0,66$
				$0,48 \pm 0,02$

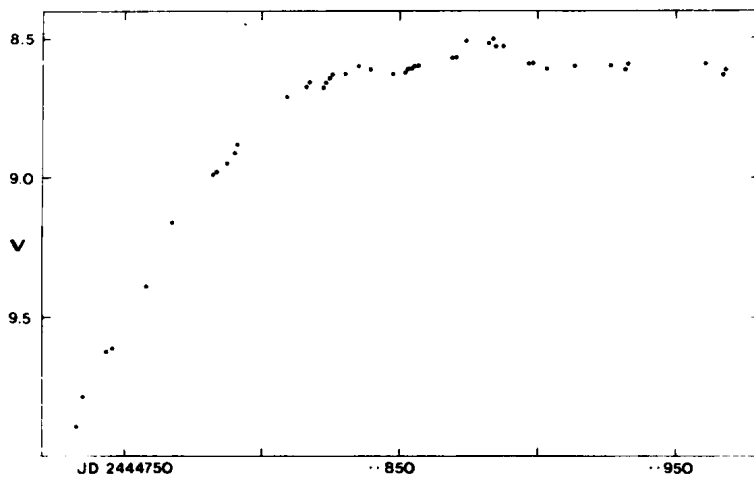


Figure 1

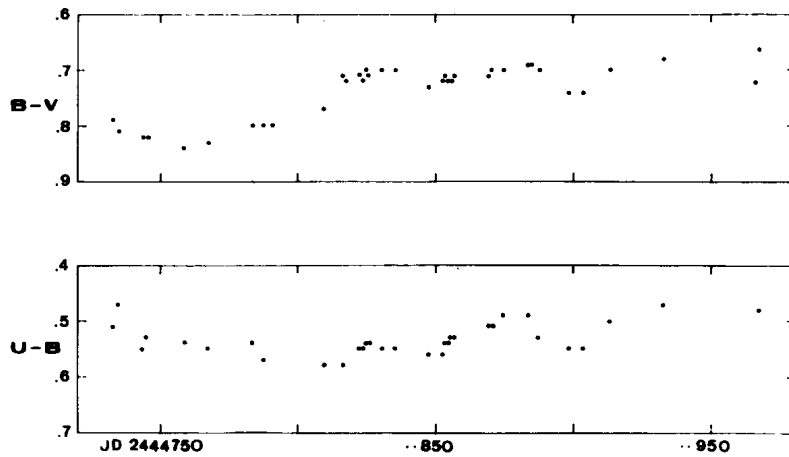


Figure 2,3

All our UBV data given in Table I are therefore relative to the corrected UBV magnitudes for this star: $V = 9^m.30$, $B - V = + 0.52$, $U - B = + 0.03$. All errors quoted in the table are standard deviations. In a number of nights of poor quality only V or B and V measurements could be obtained.

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