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V 1500 CYGNI (NOVA CYGNI 1975)

At the 90 cm telescope of the University Observatory Jena, Großschwabhausen outstation, photoelectric observations (UBV system) of Nova Cygni 1975 were taken. The photometer is equipped with a photomultiplier of the type RCA 1P21 (unrefrigerated) and the following Schott filters

u : UG 2 (1 mm)
b : BG 12 (1 mm) + GG 13 (2 mm), cemented
v : OG 4 (2 mm).

For main sequence stars the transformation of the instrumental colours to the standard ones is performed by the following equations (constant terms being dropped)

$$\begin{aligned}V &= v - 0.012 (B-V) \\(B-V) &= 0.917 (b-v) \\(U-B) &= 1.007 (u-b).\end{aligned}$$

In view of the divergence mentioned below it should be noted that the excellent approximation of the V colour is confirmed by the comparison of the response curves of the V colour and the multiplier - filter - combination used for the present observations.

The results of the observations are collected in the Table. Most of the columns need no explanation. n gives the number of observations averaged to the magnitudes and colours in the preceding columns and Δt is the length of the corresponding time interval.

The main features, such as gradual decrease or increase in brightness during the night are apparent in the Table. Plots of the individual observations reveal no reliable short scale phenomena considerably exceeding the usual photoelectric accuracy.

Comparison of the present observations with results published in the Circulars of the International Astronomical Union shows agreement in B and U. The V magnitudes, however, are deviating from the long series by T.E. Margrave and J.H. Doolittle (IAU Circ. No.2839) and T.E. Margrave (IAU Circ. No.2853), for instance. This deviation starts with 1975, Sept. 3 and is in the sense that the Jena V magnitudes are fainter. It is due to the appearance in the spectrum of the Balmer series in emission.

Date	JD minus 244 2600	Comp. stars	V	(B-V)	(U-B)	n	t (min)
1975, Aug.	31.894 .954	5,6	2 ^m 20 2.19	0 ^m .62 0.61	-0 ^m .30 -0.31	2	2
Sept.	1.892 .916 .929 2.053 .062	2,4,5,6 2	3.39 3.38 3.45 3.58 3.60	0.42 0.39 0.41 0.40 0.39	-0.42 -0.45 -0.42 -0.49 -0.50	2 2 2 2 2	3 10 11 17 6
	2.861 .956 3.009 .046	1,2	4.36 4.40 4.42 4.44	0.33 0.31 0.31 0.31	-0.58 -0.60 -0.60 -0.60	3 3 3 3	15 15 15 12
	3.971 4.014	1	5.08 5.13	0.29 0.30	-0.60 -0.62	3 4	18 18
	5.940 6.908	7 7	5.68* 5.94**	0.24* 0.21**	-0.70* -0.64**	1 2	- 28
	8.862 .899 .942 .978 9.017	9	6.27 6.36 6.45 6.39 6.37	0.19 0.17 0.16 0.16 0.17	-0.65 -0.60 -0.62 -0.60 -0.59	1 2 3 4 3	- 6 12 12 17
	9.844 .865 .938	9,10	6.40 6.43 6.60	0.14 0.11 0.12	-0.60 -0.61 -0.59	3 2 3	10 7 13
	16.861 .885 .930	11,12	7.32 7.26 7.32	-0.10 -0.11 -0.10	-0.50 -0.48 -0.47	3 2 4	45 8 19
	17.846 901 .935 .985	11,12	7.35 7.39 7.45 7.44	-0.14 -0.15 -0.12 -0.12	-0.45 -0.46 -0.46 -0.48	3 2 3 2	19 9 18 11
	22.917 .959	12	7.83 7.84	-0.25 -0.24	-0.49 -0.49	4 2	20 4
Oct.	27.824 .897	13	9.69 9.62	-0.60 -0.58	-0.61 -0.59	3 2	46 26
	29.893	13,14	9.71	-0.53	-0.52	3	20
	30.806 .819 .897	14 B=	9.76 9.15 9.83		-0.57	2 3 3	5 16 16

* very low weight.

** low weight.

List of comparison stars:

1	55 Cygni	
2	Tau Cygni	
4	Nu Cygni	
5	Gamma Cygni	
6	Delta Cygni	
7	BSC 8327	
9	HD 200723 A	
10	Cluster M 39	No. 26
11	"	No. 1
12	"	No. 5
13	"	No. 4
14	"	No. 20

The magnitudes and colours of the comparison stars were taken from the Arizona-Tonantzintla-Catalogue (Sky and Telescope 30, 25, 1965.), V.M. Blanco et al. (Publ. US Naval Obs., 2nd Ser., Vol. 21, 1968), and A.A. Hoag et al. (Publ. US Naval Obs., 2nd ser., Vol. 17. 7, 1961).

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