

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

Number 3624

Konkoly Observatory  
Budapest  
17 June 1991  
HU ISSN 0374 - 0676

THE UNUSUAL T TAURI TYPE STAR V350 CEPHEI

The variable V350 Cep (SVS 2246) was found in the star formation region NGC 7129 by Gyulbudaghian and Sarkisyan (1978a, b). In 1977-1978 its brightness was near  $17^m.5$  B and  $16^m.5$  V. The star was not seen on the Palomar Sky Survey print made on 5-6 Aug. 1954 (the limit was  $21^m.1$  B). According to Gyulbudaghian (1980) V350 Cep was not seen on 70 plates with the limit  $15^m-17^m.5$  pg, obtained during 1936-1966. Preliminary results of photographic observations, given by Pogossyants (1985) are erroneous. All our B and V data are revised in this paper.

We measured V350 Cep on 59 plates from Sternberg Institute collection. Seven estimates in the Baldone Observatory (Latvia) were made by Dr. A. Alksnis. The sequence of comparison stars calibrated through photoelectric standards in cluster NGC 7142 (van den Bergh and Heeringa, 1970) is presented in Table I and in Figure 1. Table II contains our observations. The light curve of V350 Cep, based on our data and all published data is shown in Figure 2.

For the first time the star's brightness has exceeded our plate limit of  $\sim 19^m.0$  B and  $\sim 18^m.5$  V in 1971. The maximum brightness of the star during the observations was  $16^m.4$  B and  $15^m.3$  V. The amplitude of V350 Cep is larger than  $4^m.7$  B. The amplitude of brightening in near-IR region is about  $1^m$  K during 6 years (1975-1981) (obtained by comparing results of Cohen and Schwartz (1983) and Strom et al. (1976)).

The shape of the light curve of V350 Cep resembles that of FU Ori type star V1515 Cyg (Herbig, 1977). However, as was noted by Gyulbudaghian et al. (1978), the absolute magnitude of V350 Cep corresponds to the value of T Tau type stars. Cohen (1983) presents for V350 Cep (NGC 7129/IRS 1)  $L_{bol} = 5.3 L_{\odot}$ , i.e. the value of the absolute bolometric magnitude  $M_{bol} = +2^m.9$ , while the FU Ori type objects in maximum have  $M_{bol} = -2^m.4 \pm 0^m.6$  (Herbig, 1977).

Spectral observations in July-Aug. 1978 by Magakyan and Amirkhanyan (1979) showed a classical T Tau type spectrum. Strong spectral variability was later observed by Magakyan (1983). In July 1981 the spectrum was T Tau type with strong emission lines (Cohen and Fuller, 1985). The Ca II H and K

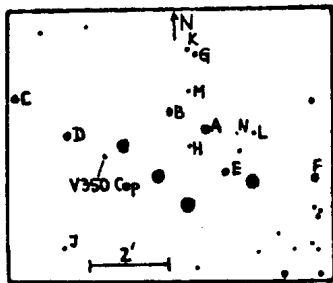


Figure 1. Photographic (V) chart for V 350 Cep

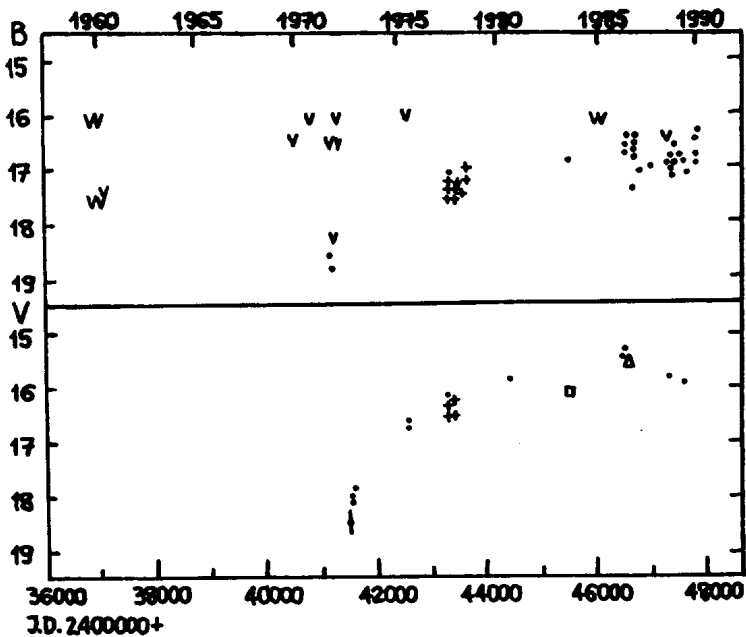


Figure 2. B and V light curves of V350 Cep. Dots are our photographic data, crosses: photographic observations (Gyulbudaghian, Sarkisyan, 1978ab and Akhverdyan, Gyulbudaghian, 1978), triangle: mean photoelectric value by Berdnikov and Ibragimov (Shevchenko, Yakubov, 1989), square: CCD-photometry (Hartigan, Lada, 1985), symbols like letter "v": upper limits of brightness from our data.

Table I

The comparison star's sequence

* B	* V	* B	V
A -----	13.93	J 17.68	16.17
B 15.79	14.40	K 18.24	16.88
C 15.92	14.90	L 18.41	17.19
D 16.08	15.25	M 18.7	16.47
E 16.46	15.22	N 18.6	17.73
F 16.81	14.70		
G 17.19	16.06		
H 17.61	15.96		

Table II

Observations with 50/70/200 cm Maksutov telescope

J.D. 24...	B	J.D. 24...	B	J.D. 24...	V
41241.217	18.6	47416.295	16.94	41577.460	18.1
41246.203	18.8	47418.301	17.07	41578.438	17.9
41247.330	(18.3	47683.444	16.90	46588.519	15.30
46087.207	(16.1	J.D. 24...	V	46590.499	15.48
46588.433	(16.1	41569.453	18.15	47417.280	15.77
46588.433	16.69	41570.373	17.85	47684.502	15.96

Observations with 80/120/240 cm Baldone Schmidt telescope

J.D. 24...	B	J.D. 24...	V
42666.413	(16.1	42666.368	16.55
42666.457	(16.1	42666.383	16.65
43377.471	17.06	43364.438	16.17
		44512.290	15.84

Observations with 40/160 cm astrograph

J.D. 24...	B	J.D. 24...	B	J.D. 24...	B
45558.534	16.90	47032.501	16.96	47766.506	16.98
46646.514	16.47	47385.432	(16.5	47773.451	17.02
46652.482	16.46	47388.466	(16.5	47797.425	(16.5
46657.531	17.40	47395.373	16.84	47807.423	16.96
46685.404	16.45	47418.371	17.05	47836.230	16.69
46706.338	16.57	47422.423	16.93	47852.204	16.47
46712.315	16.70	47448.307	16.66	47861.181	16.36
46762.194	16.86	47471.278	(16.1		
46768.177	17.13	47477.185	16.90		

lines were in emission and broad shallow absorptions (Sp. type M2) were present in Oct. 1982 (op. cit.). Goodrich (1986) reports that the EW of H $\alpha$  emission line was equal to 71 Å in July 1985.

It would be interesting to search for periodic light variations in V350 Cep like those found in many T Tau type stars.

The author is grateful to Dr. V.P. Goranskij for obtaining additional plates and help during the study and to Dr. A. Alksnis for estimating Bal-  
done plates.

A.YU. POGOSYANTS

Sternberg State Astronomical Institute  
13 Universitetskij Prospect, Moscow  
119899, U.S.S.R.

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