

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

Number 1307

Konkoly Observatory
Budapest
1977 July 21

PHOTOELECTRIC OBSERVATIONS OF NOVA SAGITTARII 1977

Photoelectric observations of Nova Sagittarii 1977 ($\alpha_{1950} = 18^{\text{h}}35^{\text{m}}17^{\text{s}}$; $\delta_{1950} = -23^{\circ}25'21''$) were secured on the 104-cm and 56-cm reflectors of the Uttar Pradesh State Observatory on several nights during April and May 1977, using UBV filters of the Johnson and Morgan system and photomultipliers cooled to -20°C . Standard dc techniques were employed for recording.

The standard deviations of the comparison star (HD 171810 \equiv SAO 187068) on any single night are $\pm 0^{\text{m}}017$; $\pm 0^{\text{m}}023$; $\pm 0^{\text{m}}022$ in the V, B and U filters respectively, for both the reflectors. The magnitudes and the colours of the nova and the comparison star are given in Table 1. The light and colour curves of the nova are plotted in Fig.1 and the colour-colour curve in Fig.2.

The comparison star happens to be the same as the one used by Austin who has also observed the nova photoelectrically on three nights earlier to our observations (IAU Circular No.3067). Small systematic differences between the standard magnitudes and colours of the comparison star obtained by Austin and by us are to be noted.

From the V light curve, the average rate of decline of the nova during the period of our observations comes out to be $0^{\text{m}}04$ per day. The colour curves and the colour-colour diagram of the nova indicate that, in an over all way, the nova relatively brightened up in the B such that, apart from small fluctuations, the B-V index got bluer at an average rate of 0.02 per 10 days, and the U-B index got redder at an average rate of $0^{\text{m}}04$ per 10 days.

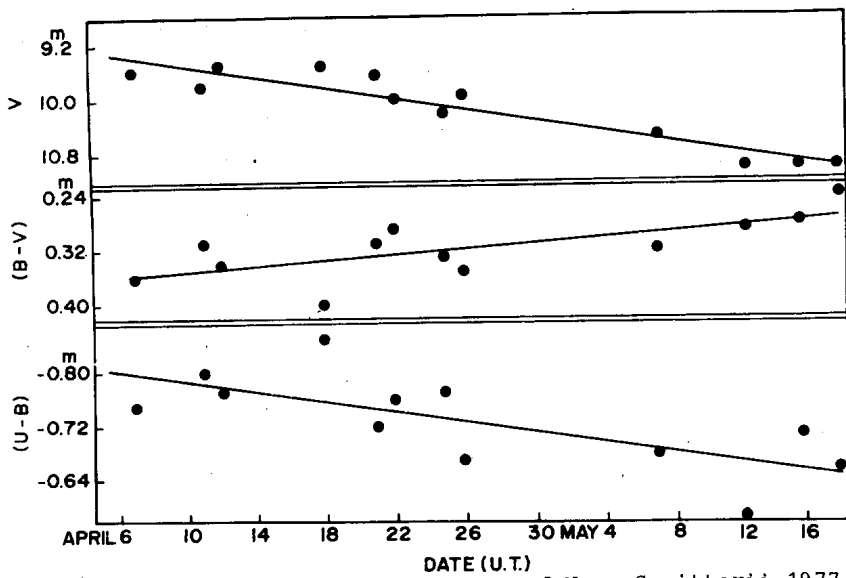


Fig. 1. Light and colour curves of Nova Sagittarii 1977

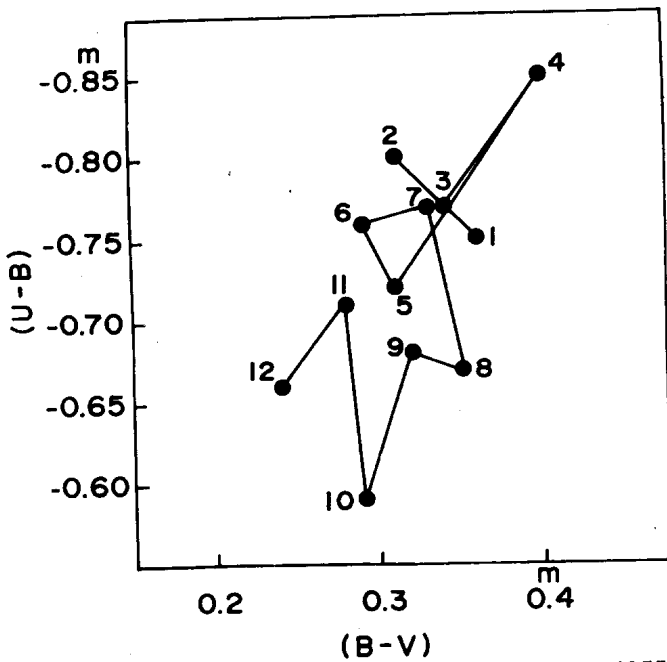


Fig. 2. Colour-colour diagram of Nova Sagittarii 1977. The numbers represent the position of the nova in the colour-colour diagram on successive nights of Table 1.

Table 1

Magnitude and colours of Nova Sagittarii 1977 and the comparison star HD 171810 (\equiv SAO 187068).

Sr No.	Date, U.T. 1977	V	(B-V)	(U-B)	Number of observations
1	April 6 ^d .96	9 ^m .59	0 ^m .36	-0 ^m .75	2
2	10.92	9.82	0.31	-0.80	2
3	11.96	9.50	0.34	-0.77	5
4	17.94	9.56	0.40	-0.85	7
5*	20.90	9.66	0.31	-0.72	6
6*	21.92	10.04	0.29	-0.76	4
7*	24.94	10.22	0.33	-0.77	3
8*	25.89	9.89	0.35	-0.67	8
9	May 6.88	10.58	0.32	-0.68	6
10	11.93	11.02	0.29	-0.59	4
11	15.83	10.99	0.28	-0.71	9
12	17.85	11.02	0.24	-0.66	3
Comparison star .		8.16	0.56	0.00	

*Observed on 56-cm telescope.

Acknowledgement

The authors are thankful to Dr.S.D. Sinvhal for helpful discussions. Thanks are also due to C.D. Kandpal, A.K. Bhatnagar, U.C. Joshi and B.B. Sanwal for participation in the observations.

RAM SAGAR

H.S. MAHRA

S.C. JOSHI

J.B. SRIVASTAVA

Uttar Pradesh State
Observatory, Manora Peak,
Naini Tal-263129
India