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NOVA SAGITTARII 1975 NO 2

Nova Sagittarii 1975 No 2 was found on an objective prism plate taken with the Uppsala Southern Schmidt telescope at Mt Stromlo (IAU Circ. 2997). Since the plate belongs to a large survey work, it was unfortunately not searched until more than a year after the exposure. The only observations of the nova in the bright phase besides this spectrogram are, as far as we know, three magnitude measurements made by Huth (IBVS No. 1205) included in the Sonneberg Sky Patrol programme. We have also identified the star on Palomar Observatory Sky Survey and on Uppsala Southern Schmidt plates taken during 1977. The position of the candidate star is

$$\alpha = 17^{\text{h}}46^{\text{m}}47^{\text{s}}.4 \pm 0.4$$

$$\delta = -17^{\circ}22'30'' \pm 5''$$

for the epoch 1950.0, being equal to $l=10.39^{\circ}$, $b=5.15^{\circ}$, i.e. close to the direction of the galactic centre. A finding chart is given in Fig.1, magnitude observations in Table 1.

Table 1

Year, date	Source	m _{pg}
1950	Palomar Observatory Sky Survey	15:
1975 May 12.98	Sonneberg Sky Patrol	>11
1975 June 1.99	Sonneberg Sky Patrol	9.4
1975 June 8.69	Uppsala Southern Schmidt (prism)	8.5:
1975 July 5.92	Sonneberg Sky Patrol	>11
1977 March 15	Uppsala Southern Schmidt (direct)	15:

The objective prism spectrogram was scanned with the PDS machine of Lund Observatory. Unfortunately the spectrum was partly

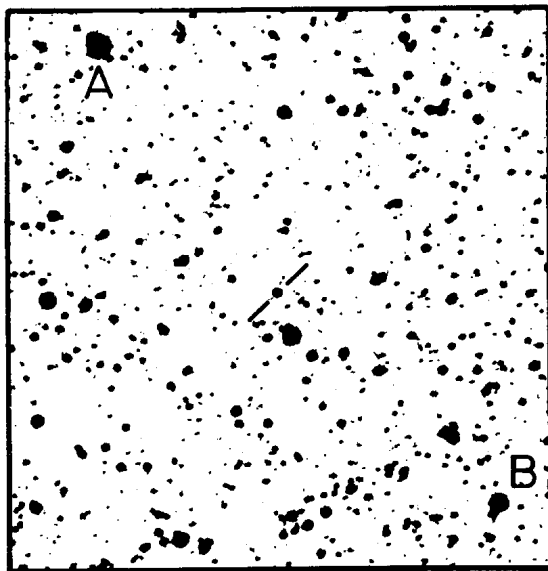


Fig.1. Finding chart for the nova. The side of the field is 10'. Visual plate from Uppsala Southern Schmidt Star A is HD 162080 and star B is BD -17°4926.

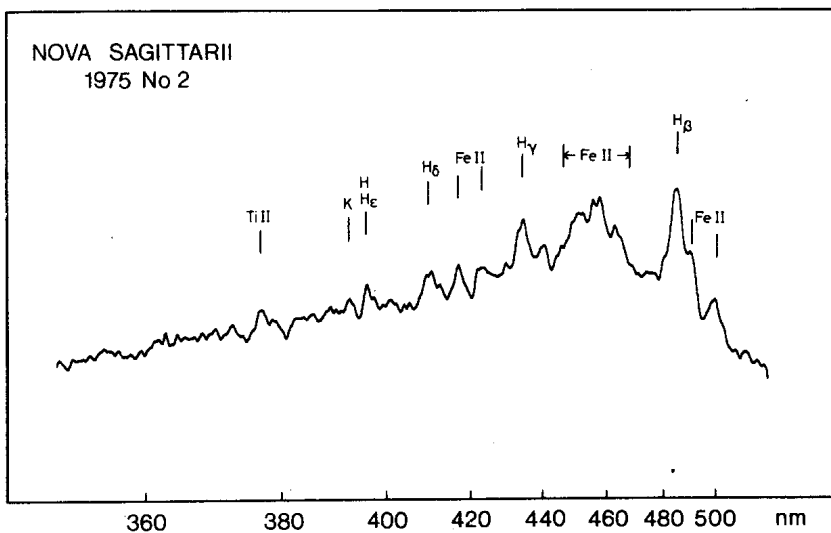


Fig.2. Filtered density tracing of the nova spectrum. Original dispersion is 47 nm/mm.

overlapped with the fainter spectrum of a nearby star, thus preventing us from using the full width of the spectrogram. Fig. 2 shows a density tracing filtered with a Gaussian numerical filter in order to reduce the background noise. The relatively low original dispersion, 47 nm/mm at H γ , does not allow a detailed identification of the spectral features. The strongest emission features, besides the Balmer lines, are due to Fe II and Ti II, and the absorption lines are not very pronounced. This suggests that the spectrum is of the "diffuse enhanced" type, characteristic for a nova about two magnitudes below maximum. Moreover, a comparison with a series of spectrograms of Nova Cygni 1975 (Lindegren and Lindgren, Nature 258, 501), shows that the spectrum very closely resembles the spectrum of Nova Cygni 1.5 magnitudes below maximum. The maximum magnitude would then be around $m_{pg} = 7$, giving a total amplitude of about 8 magnitudes. This also implies that the observation on June 1.99 is a premaximum observation, and that the maximum brightness occurred one or two days later. The (negative) observation on July 5.92 puts an upper limit on the time for the decline to three magnitudes below maximum, t_3 . It follows that $t_3 < 33$ days, probably is t_3 considerably smaller (10 - 20 days). This places the nova in the group of fast or possibly very fast novae.

On the basis of the scarce data no reliable values for absolute magnitude and distance can be calculated. We would be very happy to know if there exist any other observations of this nova during its active stage, since such data could provide a basis for more firm and reliable conclusions about its properties.

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