COMMISSIONS 27 AND 42 OF THE IAU
INFORMATION BULLETIN ON VARIABLE STARS
Number 4553

Konkoly Observatory
Budapest
6 February 1998
HU ISSN 0374 – 0676

ON THE RECENT NOVA IN NGC 205

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Qiao et al. (1997) reported the discovery of a nova in NGC 205 in the course of the Beijing Astronomical Observatory supernova survey. They derived unfiltered CCD magnitudes of the nova on three nights in succession, and on one of the nights obtained a low-resolution spectrogram which showed features typical of novae after maximum.

We estimated the brightness of the Nova on plates taken for search of novae in M 31 with the Baldone 80-cm Schmidt telescope of the Institute of Astronomy, University of Latvia, and with the 50-cm Maksutov telescope at the Crimean Laboratory of the Sternberg Astronomical Institute of the Moscow University.

The dates, times of the middle of exposure in Julian days, and B-magnitudes of the Nova based on the photometric sequences in the central region of M 31 (Rosino et al., 1989) are given in Table 1.

Table 1

Date, 1997	JD 2450000+	B
Nov 5/6	758.300	(19.
Nov 5/6	758.340	(19.9
Nov 9/10	762.482	(19.5
Nov 20/21	773.242	17.8
Nov 20/21	773.319	18.0
Nov 24/25	777.217	18.5
Nov 28/29	781.194	19.0::
Dec 1/2	784.406	19.3::
Dec 5/6	788.377	19.3:
Dec 5/6	788.464	(19
Dec 16/17	799.187	(19.5
Dec 19/20	802.191	(19.9
Dec 19/20	802.227	20.1

From the nearly simultaneous (Nov. 23.4 and Nov. 23.44 UT) $V = 18.1$ and unfiltered $m(\mathrm{CCD}) = 18.5$ magnitudes (Qiao et al., 1997) and the average intrinsic colour index

$B - V = 0.23$ for novae at maximum light (van den Bergh and Younger, 1987) we derive $B - m(\mathrm{CCD}) = -0.17$, and from magnitudes by Qiao et al. we obtain estimates of B-magnitudes of the Nova: 18.6 at JD 2450774.04, 18.2 at 0775.00, and 18.3 at 0775.92, values that on the average fit well to our light curve.

The available photometric data for the Nova do not allow to determine time and value of the maximum brightness exactly. However, the Nova was at least as bright as $B = 17.8$, and probably 17.4 or even brighter (see Figure 1). In the case of the mentioned alternatives, the estimated rate of decline is $\log(100d) = 0.94$ and $\log(100d) = 1.03$, which corresponds to the fast novae according to the classification by Payne-Gaposchkin (1957).

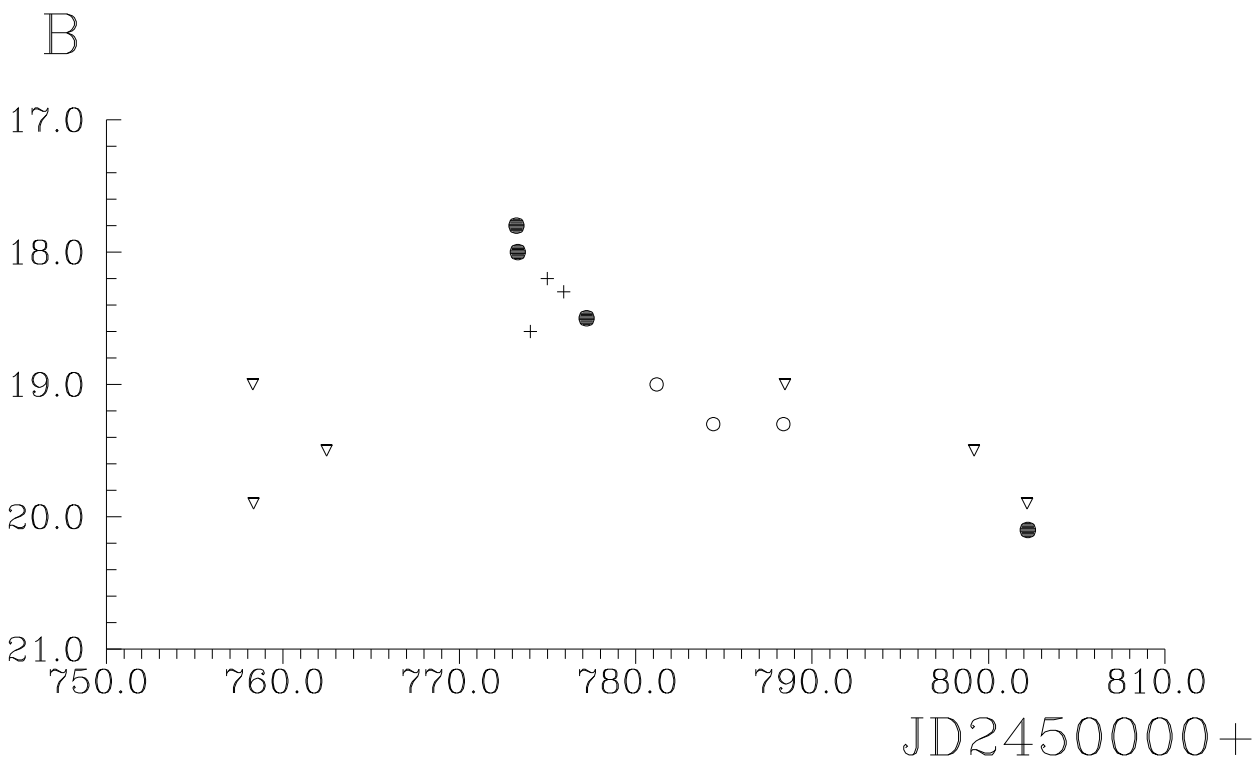

Figure 1. The light curve of the nova in NGC 205. Filled circles: our confident measurements; open circles: our uncertain measurements; triangles: our bright limits; crosses: measurements by Qiao et al. reduced to B magnitudes by us.

It is difficult to prove that this Nova really belongs to NGC 205. If we suppose that the Nova is located in the main plane of the galaxy M 31, then the Nova's distance from its center is about 31 kpc, as large as that of another very distant Nova ShA 39 in M 31 (Sharov and Alksnis, 1995).

According to measurements by Yu.A. Shokin, the coordinates of the Nova are the following:

$$\alpha_{1950.0} = 0^{\mathrm{h}}37^{\mathrm{m}}39\overset{\mathrm{s}}{.}478$$
$$\delta_{1950.0} = +41^{\circ}27'00\overset{''}{.}05$$

The Nova is the second known nova in the region of NGC 205. The first one was discovered by Zwicky (1957) 7′ north from the center of NGC 205 on September 21, 1955. However, no details were published.

We wish to thank Yu.A. Shokin for determining the coordinates of the Nova. One of the authors (A.Sh.) is also grateful to the Russian Foundation for Basic Research and to the Council of the Program for the Support of Leading Scientific Schools (grants 95-02-03942 and 96-15-96656).

References:

Payne-Gaposchkin, C., 1957, *The Galactic Novae*, North-Holland Publ. Comp., Amsterdam, p.24

Qiao, Q.Y., Qiu, Y.L., Hu, J.Y., Li, W.D., Esamdin, A., Zhang, Y., 1997, *IAU Circ.*, No. 6777

Rosino, L., Capaccioli, M., D'Onofrio, M., Della Valle, M., 1989, *Astron. J.*, **97**, 83

Sharov, A.S., Alksnis, A., 1995, *Pis'ma v Astron. Zh.*, **21**, 650 = *Astron. Lett.*, **21**, 579

van den Bergh, S., Younger, P.F., 1987, *A&A Suppl. Ser.*, **70**, 125

Zwicky, F., 1957, *Morphological Astronomy*, Berlin–Göttingen–Heidelberg, p.210