

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

Number 5869

Konkoly Observatory
Budapest
12 January 2009

HU ISSN 0374 – 0676

**ROTSE-III OBSERVATIONS OF NOVA M31 2008-08D
(ROTSE3 J004548.3+430222)**

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Nova M31 2008-08d (ROTSE3 J004548.3+430222), with a projected distance of ~ 25 kpc from the center of M31, was discovered in unfiltered CCD images taken with the 0.45-m ROTSE-IIIb telescope at McDonald Observatory on August 25.23 UT, 2008. It was initially reported by Yuan et al. (2008) as an optical transient with unknown nature because of the multi-peaked early lightcurve atypical of a nova and its ambiguous correlation with an INT¹ *V*-band archive source. Spectroscopic observation by Chornock et al. (2008) identifies it as a classical nova of Fe II type with a radial velocity consistent with a location in M31.

We report in Table 1 the complete photometric observations of this nova by ROTSE-IIIb and ROTSE-IIIc at the TUBITAK National Observatory in Turkey. The ROTSE-III images were bias-subtracted and flat-fielded by the automated pipeline. Initial object detections were performed by SExtractor. The images were then processed with our custom RPHOT photometry program based on the DAOPHOT PSF-fitting photometry package (Quimby et al. 2006). The response peak of ROTSE-III CCDs covers a similar range to *R*-band. The magnitude zero point for each image was estimated from median offset of the fiducial reference stars to the USNO-B1.0 *R*-band measurements.

The ROTSE-III detections are plotted in Figure 1 together with upper limits constraining the rise and decay of the transient. The overall decaying lightcurve shows significant amount of oscillation before dropping below our detection threshold at the end of October. It is not uncommon for nova lightcurves to show variations due to dust formation (Shafter 2008), but usually on longer time-scales than observed for this object.

¹The INT data were obtained from the Isaac Newton Group Archive which is maintained as part of the CASU Astronomical Data Centre at the Institute of Astronomy, Cambridge.

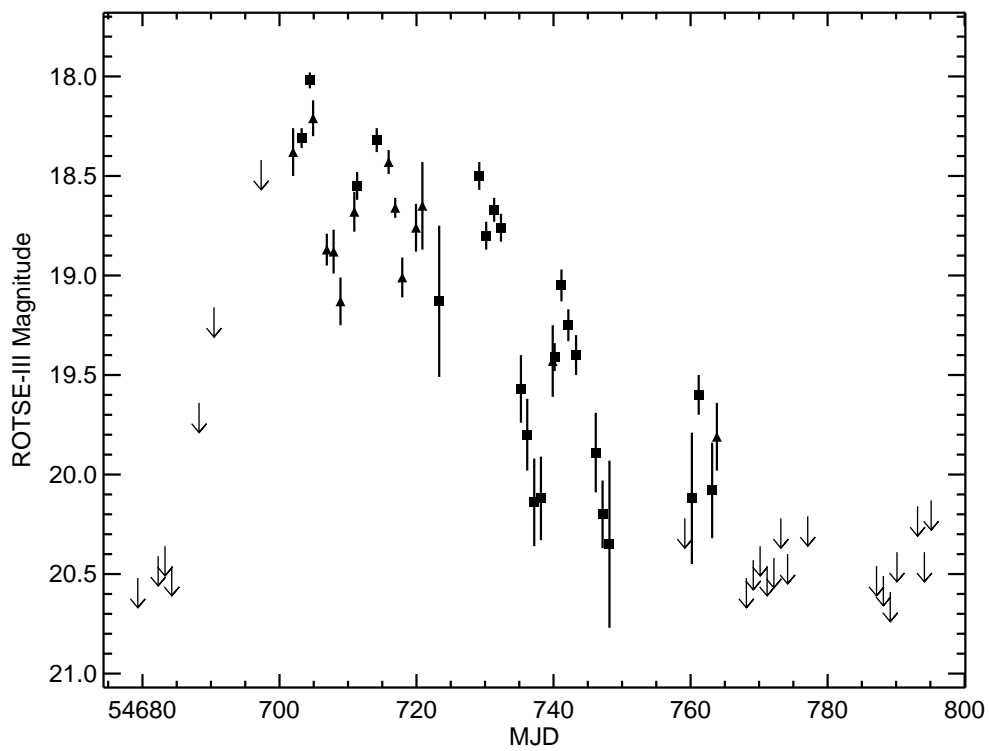


Figure 1. ROTSE-III lightcurve of Nova M31 2008-08d (ROTSE3 J004548.3+430222). The filled squares are detections from ROTSE-IIIb and the filled triangles are detections from ROTSE-IIIc. All the upper limits (downward arrows) are from ROTSE-IIIb.

References:

- Yuan, F., et al. 2008, *The Astronomer's Telegram*, **1702**
- Chornock, R., Silverman, J. M., George, M. R., and Filippenko, A. V. 2008, *The Astronomer's Telegram*, **1708**
- Quimby, R. M., et al. 2006, *ApJ*, **636**, 400
- Shafter, A. W. 2008, Private Communication

Table 1. Log of ROTSE-III observations

MJD	Magnitude	Error	Upper Limit	ROTSE Telescope
54679.32			20.52	IIIb
54682.29			20.41	IIIb
54683.29			20.36	IIIb
54684.28			20.46	IIIb
54688.26			19.64	IIIb
54690.44			19.16	IIIb
54697.32			18.42	IIIb
54701.99	18.38	0.12		IIIId
54703.23	18.31	0.05		IIIb
54704.43	18.02	0.04		IIIb
54704.91	18.21	0.09		IIIId
54706.91	18.87	0.08		IIIId
54707.90	18.88	0.11		IIIId
54708.90	19.13	0.12		IIIId
54710.92	18.68	0.10		IIIId
54711.33	18.55	0.07		IIIb
54714.19	18.32	0.06		IIIb
54715.93	18.43	0.06		IIIId
54716.89	18.66	0.05		IIIId
54717.92	19.01	0.10		IIIId
54719.93	18.76	0.12		IIIId
54720.86	18.65	0.22		IIIId
54723.31	19.13	0.38		IIIb
54729.16	18.50	0.07		IIIb
54730.17	18.80	0.07		IIIb
54731.33	18.67	0.06		IIIb
54732.33	18.76	0.07		IIIb
54735.24	19.57	0.17		IIIb
54736.16	19.80	0.18		IIIb
54737.18	20.14	0.22		IIIb
54738.16	20.12	0.21		IIIb
54739.88	19.43	0.18		IIIId
54740.16	19.41	0.07		IIIb
54741.16	19.05	0.08		IIIb
54742.16	19.25	0.08		IIIb
54743.29	19.40	0.10		IIIb
54746.16	19.89	0.20		IIIb
54747.16	20.20	0.17		IIIb
54748.16	20.35	0.42		IIIb
54759.16			20.22	IIIb
54760.19	20.12	0.33		IIIb
54761.19	19.60	0.10		IIIb
54763.15	20.08	0.24		IIIb
54763.84	19.81	0.17		IIIId
54768.15			20.52	IIIb
54769.15			20.43	IIIb
54770.15			20.36	IIIb
54771.17			20.46	IIIb
54772.16			20.42	IIIb
54773.18			20.22	IIIb
54774.16			20.40	IIIb
54777.10			20.21	IIIb
54787.14			20.46	IIIb
54788.14			20.51	IIIb
54789.14			20.59	IIIb
54790.13			20.39	IIIb
54793.13			20.16	IIIb
54794.13			20.39	IIIb
54795.11			20.13	IIIb