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**PHOTOMETRIC SEQUENCES AND ASTROMETRIC POSITIONS
OF NOVA Cyg 2008 N.2 AND NOVA Sgr 2008**

HENDEN, ARNE¹; MUNARI, ULISSE²

¹ AAVSO, American Association of Variable Star Observers, 49 Bay State Road, Cambridge, MA 02138, USA

² INAF Osservatorio Astronomico di Padova, Sede di Asiago, I-36032 Asiago (VI), Italy

Nova Cyg 2008 N.2 (= V2491 Cyg) was discovered by K. Nishiyama and F. Kabashima at ~ 7.7 mag on Apr. 10.728 UT (cf. Nakano, 2008a). Spectroscopic confirmation was provided by Ayani and Matsumoto (2008) on Apr. 11.72 UT, that observed a FWHM of 4500 km/s for the H α emission line. P-Cyg absorption components for Balmer lines at -4000 km/s were reported by Tomov et al (2008a) for Apr. 11.99 and 13.95 spectra, together with presence of an additional emission component at $+2300$ km/s and a classification as a FeII-type nova given the numerous FeII multiplets seen in emission. A classification as He/N-type nova was instead preferred by Lynch et al. (2008) on the base of their near-IR spectra of Apr. 12.56 UT that displayed a FWHM of 5500 km/s for the emission lines that included HeI, NI, NII and OI. From the intensity of OI emission lines at 0.84 and 1.13 μm on Apr. 17.6 UT, Rudy et al. (2008) estimated a reddening $E_{B-V} \sim 0.43$. The FWHM of the emission lines in the near-IR spectra of Ashok et al. (2008) for Apr. 18 and 20 were ~ 4100 km/s, while it ranged from 4200 to 5400 km/s depending from the given emission line in the optical spectra for Apr. 27.3 and 28.4 UT of Helton et al. (2008) who also remarked on the appearance of HeII and NIII emission lines in the spectra and the disappearance of P-Cyg absorption components from all emission lines. A detailed description of the spectral appearance on Apr 15 and 17 was presented by Tomov et al. (2008b), who revised their classification to that of a He/N-type nova.

Ibarra and Kuulkers (2008) were the first to note the positional coincidence of Nova Cyg 2008 N.2 with an X-ray source observed before outburst by Rosat, Swift and XMM-Newton satellites. A greater number of details of such pre-outburst X-ray observations were reported by Ibarra et al. (2008), that noted how the source was largely variable on time scales of ~ 4 days, sometimes displaying a very soft energy distribution. The only other nova detected in X-rays *before* the outburst is Nova Oph 1998 (=V2487 Oph, Hernanz and Sala, 2002). The nova was not-detected by Swift on Apr. 11 and instead positively observed by the X-ray satellite on Apr. 15, at a much lower count rate than before the outburst (Kuulkers et al., 2008).

Finally, Balman, Pekon and Kiziloglu (2008) reported that their serendipitous monitoring on the nova field from July to November 2007 failed to reveal any source at the nova position brighter than the $R_C=18.2$ mag limiting magnitude of their observations.

Nova Sgr 2008 (= V5579 Sgr) was also discovered by K. Nishiyama and F. Kabashima, at ~ 8.4 mag on Apr 18.784 UT (cf. Nakano et al., 2008b). Spectroscopic confirmation

was provided by M. Fujii on Apr. 19.82 UT (cf. Yamaoka, 2008) who noted a prominent P-Cyg profile for H α .

In this note we present a BVR_CI_C photometric sequence around both novae, optimized for CCD observations and their color corrections. To calibrate the sequences, we obtained CCD photometry with the Sonoita Research Observatory 0.35-m robotic telescope on several distinct photometric nights, using BVR_CI_C filters and an SBIG STL-1001E CCD camera. Pixel size is 1''25/pix and the field of view is 20' \times 20'. Observations on each photometric night included following an extinction star from low to high airmass, along with BVR_CI_C exposures of Landolt standard fields (Landolt, 1983, 1992). The photometric sequences are presented in Figures 1 and 2. Astrometry was performed using SLALIB (Wallace, 1994) linear plate transformation routines in conjunction with the UCAC2 reference catalog. Errors in coordinates were less than 0.1 arcsec in both coordinates, referred to the mean coordinate zero point of the reference stars in each field.

The coordinates we derived for Nova Cyg 2008 N.2 are $\alpha_{J2000} = 19^{\text{h}}43^{\text{m}}01^{\text{s}}980 (\pm 0^{\text{s}}030)$, $\delta_{J2000} = +32^{\circ}19'13''.55 (\pm 0''.017)$, close to the coordinates reported by Sostero and Guido (2008) at position end figures 01^s98 and 13''5. Within 0.9 arcsec of this position there is the very faint star USNO-B1.0 1223-0482965 ($R=15.9$ mag), with no counterpart in the 2MASS catalog. Its position end figures are 02^s04 and 13''8 (0.4 arcsec error). If this was indeed the progenitor, the amplitude of the outburst in the R band reached 9 mag.

Our coordinates for Nova Sgr 2008 are: $\alpha_{J2000} = 18^{\text{h}}05^{\text{m}}58^{\text{s}}92 (\pm 0^{\text{s}}08)$, $\delta_{J2000} = -27^{\circ}13'55''.9 (\pm 0''.25)$, close to the coordinates reported by Nakano (2008b) at position end figures 58^s88 and 56''0. The field is extremely crowded, with several very faint field stars laying within 4 arcsec from nova position and not listed in USNO B1 or 2MASS catalogs.

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Nova Cyg 2008 N.2 $\alpha_{J2000} = 19\ 43\ 01.980$ $\delta_{J2000} = +32\ 19\ 13.55$

	α_{J2000} (\pm'')	δ_{J2000} (\pm'')	N	V (\pm)	B-V (\pm)	V-R _C (\pm)	R _C -I _C (\pm)	V-I _C (\pm)					
a	295.770766	0.000	2	10.130	0.030	0.073	0.035	0.024	0.028	0.059	0.027	0.084	0.023
b	295.715457	0.023	2	11.430	0.011	0.647	0.003	0.364	0.042	0.344	0.047	0.703	0.017
c	295.795501	0.068	5	12.266	0.022	1.224	0.031	0.651	0.026	0.548	0.033	1.186	0.032
d	295.730632	0.029	5	12.588	0.024	0.928	0.037	0.532	0.022	0.448	0.029	0.969	0.033
e	295.755898	0.035	5	12.920	0.020	0.620	0.030	0.365	0.033	0.352	0.018	0.715	0.030
f	295.714856	0.058	5	13.447	0.027	0.405	0.029	0.240	0.035	0.249	0.017	0.489	0.029
g	295.725640	0.109	4	13.768	0.012	1.716	0.046	1.338	0.024	1.495	0.086	2.841	0.089
h	295.730676	0.067	4	13.825	0.023	1.150	0.049	0.590	0.062	0.533	0.034	1.113	0.032
i	295.796389	0.027	5	13.912	0.019	0.473	0.034	0.295	0.028	0.292	0.017	0.586	0.034
j	295.767954	0.085	5	14.065	0.031	1.388	0.041	0.796	0.040	0.720	0.013	1.505	0.043
l	295.802322	0.044	5	14.112	0.026	0.845	0.038	0.486	0.048	0.507	0.040	0.994	0.042
m	295.709392	0.120	4	14.183	0.011	1.713	0.079	0.983	0.037	0.871	0.034	1.837	0.025
n	295.702940	0.061	3	14.751	0.018	1.320	0.038	0.750	0.041	0.708	0.013	1.450	0.037
p	295.706523	0.086	3	15.308	0.017	1.425	0.027	0.841	0.037	0.808	0.013	1.642	0.031
q	295.795897	0.096	4	15.858	0.016	0.571	0.045	0.393	0.023	0.454	0.041	0.854	0.042
r	295.797462	0.087	3	16.203	0.022	0.842	0.049	0.520	0.023	0.481	0.037	0.996	0.051
s	295.739036	0.030	3	16.897	0.039	0.935	0.025	0.565	0.061	0.529	0.039	1.088	0.060
t	295.761767	0.303	3	17.680	0.034	0.815	0.116	0.639	0.028	0.566	0.053	1.194	0.061

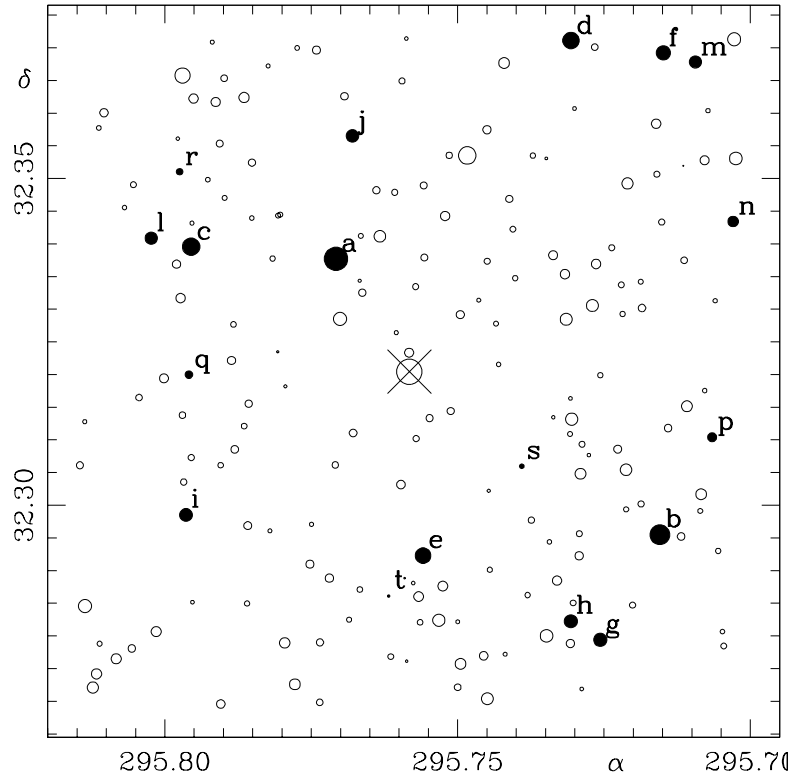


Figure 1. $BVR_C I_C$ photometric comparison sequence around Nova Cyg 2008 N.2. The cross indicates the nova. N is the number of nights in which the given star has been measured in the given band. The error in α and δ are in arcsec. The panel covers a $6' \times 6'$ area centered on the nova and shows stars down to $V=18.2$. Star a is HD 331150.

Nova Sgr 2008	$\alpha_{J2000} = 18\ 05\ 58.92$	$\delta_{J2000} = -27\ 13\ 55.9$
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	α_{J2000} (\pm'')	δ_{J2000} (\pm'')	N	V (\pm)	B-V (\pm)	V-R _C (\pm)	R _C -I _C (\pm)	V-I _C (\pm)							
a	271.498698	0.013	-27.218845	0.068	3	12.181	0.029	1.274	0.013	0.670	0.019	0.593	0.033	1.253	0.036
b	271.461207	0.022	-27.184760	0.063	3	12.358	0.025	1.695	0.030	0.906	0.054	0.803	0.049	1.694	0.046
c	271.551541	0.105	-27.210843	0.072	3	12.535	0.026	1.433	0.037	0.824	0.044	0.928	0.061	1.761	0.084
d	271.466788	0.028	-27.181444	0.076	3	12.652	0.020	0.646	0.029	0.361	0.036	0.367	0.040	0.728	0.044
e	271.457383	0.060	-27.209712	0.139	3	12.860	0.025	1.700	0.014	0.916	0.035	0.822	0.036	1.725	0.044
f	271.520404	0.088	-27.169562	0.081	3	12.991	0.025	0.354	0.030	0.246	0.031	0.278	0.047	0.528	0.057
g	271.511246	0.107	-27.204964	0.099	3	12.999	0.017	1.228	0.029	0.653	0.048	0.563	0.032	1.206	0.032
h	271.546017	0.112	-27.267344	0.101	3	13.129	0.022	0.831	0.014	0.439	0.052	0.428	0.034	0.865	0.043
i	271.463180	0.134	-27.198303	0.175	3	13.213	0.027	0.254	0.034	0.156	0.043	0.211	0.028	0.391	0.012
j	271.511217	0.170	-27.241061	0.278	3	13.463	0.026	0.667	0.035	0.402	0.039	0.409	0.049	0.814	0.060
α	271.326008	0.028	-27.135099	0.069	3	10.728	0.021	0.085	0.027	0.047	0.023	0.056	0.026	0.105	0.039
β	271.437136	0.029	-27.160220	0.032	3	11.226	0.026	1.171	0.020	0.630	0.030	0.557	0.026	1.178	0.019
γ	271.472608	0.108	-27.148808	0.109	3	11.377	0.025	1.574	0.014	0.824	0.037	0.706	0.028	1.514	0.035
δ	271.393885	0.049	-27.114685	0.060	3	11.608	0.011	1.806	0.026	1.192	0.038	1.370	0.041	2.577	0.049
ϵ	271.553356	0.022	-27.248853	0.043	3	11.872	0.023	0.679	0.011	0.379	0.032	0.369	0.026	0.747	0.035
ζ	271.503831	0.033	-27.109669	0.032	3	12.159	0.023	0.825	0.027	0.463	0.033	0.390	0.035	0.844	0.043

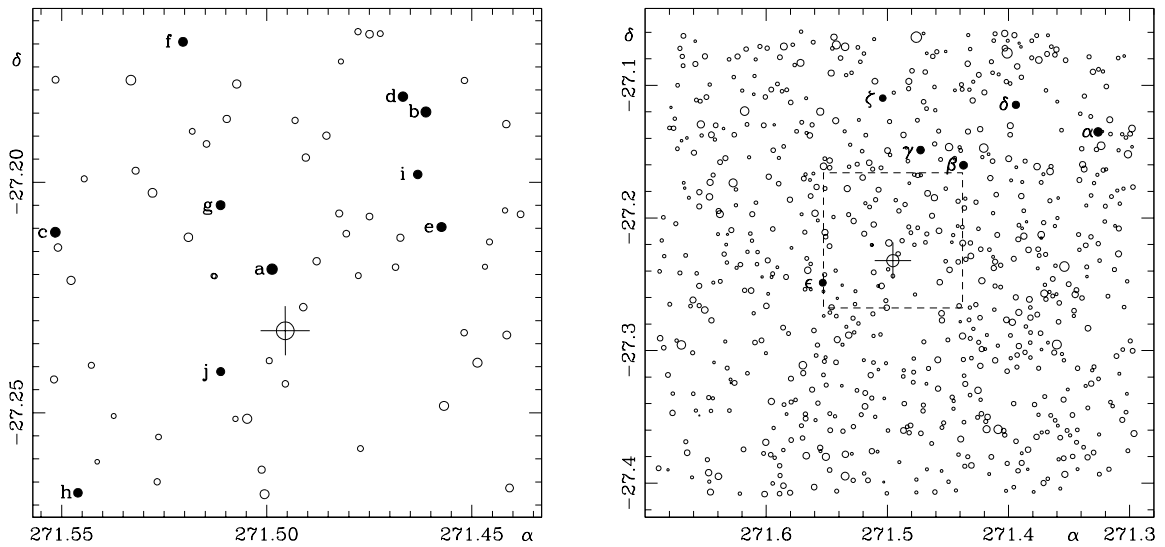


Figure 2. $BVR_C I_C$ photometric comparison sequence around Nova Sgr 2008. The cross indicates the nova. N is the number of nights in which the given star has been measured in the given band. The error in α and δ are in arcsec. The panel on the right covers a $20' \times 20'$ area centered on the nova and shows stars down to $V=16.0$. The dashed $6' \times 6'$ area is zoomed in on the left panel.