BVRI photometry of extremely slow nova Aql = V1548 Aql

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Citation: AIP Conference Proceedings **637**, 319 (2002); doi: 10.1063/1.1518223
View online: http://dx.doi.org/10.1063/1.1518223
View Table of Contents: http://scitation.aip.org/content/aip/proceeding/aipcp/637?ver=pdfcov
Published by the AIP Publishing

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Abstract. The preliminary result of the detail *VRI* photometry of Nova Aql 2001 = V1548 Aql during the outburst decline is presented. Nova shows an extremely slow fading with rate of 0.006 mag/day over first 150 days. Quasi-regular brightening with typical time $\sim$ 60 days and amplitude up to 1^m were superposed on the outburst decline. A peculiarities of behaviour of this nova on the color-color diagram are discussed.

OBSERVATIONS

Nova V1548 Aql was discovered by Mike Collins [1]. We observed this star in 2001 – 2002 years in Crimean Astrophysical Observatory, Special Astronomical Observatory and Sternberg Astronomical Institute in the close to Johnson and Morgan *VRI* fhotometric systems by use SBIG CCD cameras ST-6 and ST-7.

GENERAL FEATURES OF PHOTOMETRIC BEHAVIOR

We combined our *BVRI* observations with visual observations taken from the VSNET (vsnet.kusastro.kyoto-u.ac.jp/vsnet/lists.html) and presented them in Fig. 1. Over first 150 days since outburst Nova faded with a very slow rate 0.006 mag/day in V. Its t_3 is $> 400\ d$.

V1548 Aql displayed a quasi-periodical brightness variations in all spectral bands superposed on the slow decline. The amplitude of variations was not stable, sometimes it reached 1^m in V. To study the typical time of these variations, we computed a periodogram by Stellingwerf method for our V and available visual data, using the ISDA package [2]. It is presented in Fig. 2. One can see that the strongest peak corresponds to the period of $\sim$ 57-d variations. The data folded on this period show a two-humped shape, so we suggest that the two times shorter period could be more real. All visual data folded on the 28.5-d period are presented in Fig. 3.

During the first 200 days V1548 Aql was redder when fainter, this effect was more prominent in $V-R$ and almost not visible in $V-I$ (see Fig. 4). Later Nova came back very soon to its previous $V-R$ color and during the next 200 d it has been faded without (or almost without) change in $V-R$ and $V-I$.

CP637, *Classical Nova Explosions: International Conference on Classical Nova Explosions*
edited by M. Hernanz and J. José

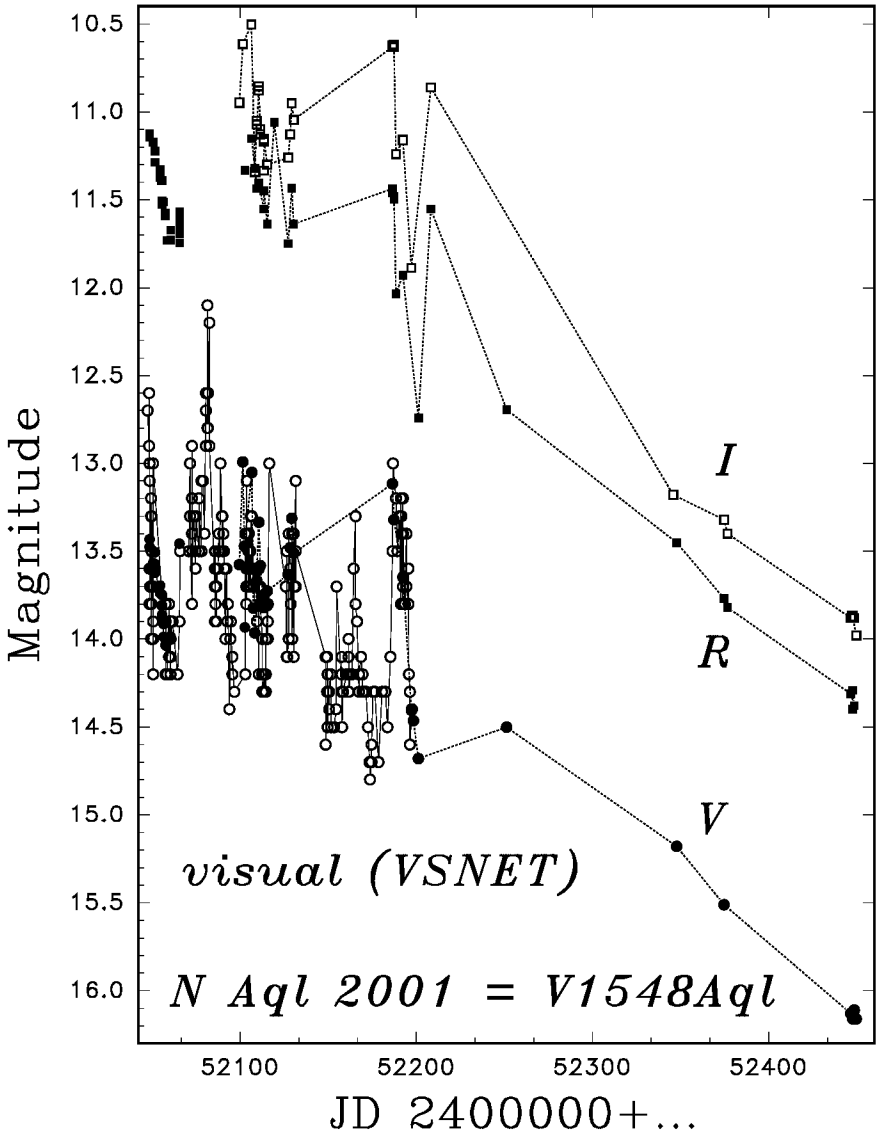

FIGURE 1. Light curve of V1548 Aql in V (filled circles), R (filled squares), I (open squares). Visual data taken from VSNET are shown by open circles.

$V-R$ and $V-I$ colors indicate significant interstellar reddening in direction to the V1548 Aql. Its quasi-periodical behavior during the outburst decline is somewhat similar to those in V723 Cas [3].

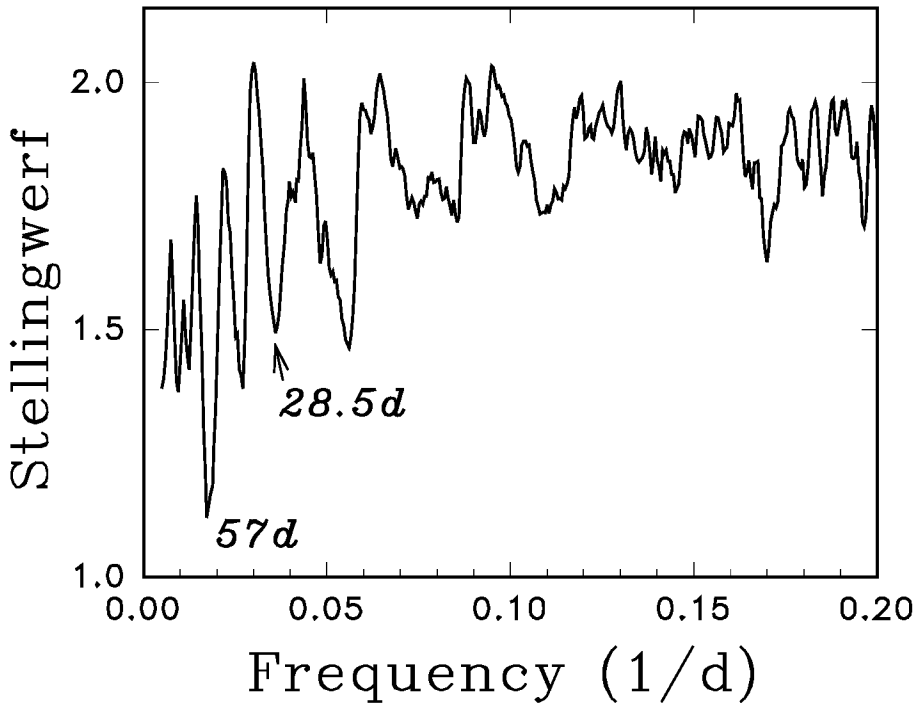

FIGURE 2. Periodogram obtained by Stellingwerf method for the *V* and visual (VSNET) data.

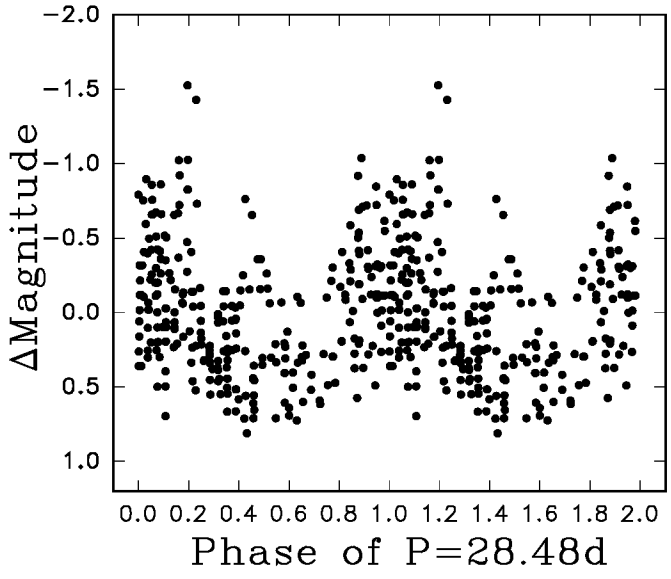

FIGURE 3. *V* and visual data folded on the period of 28.48 day

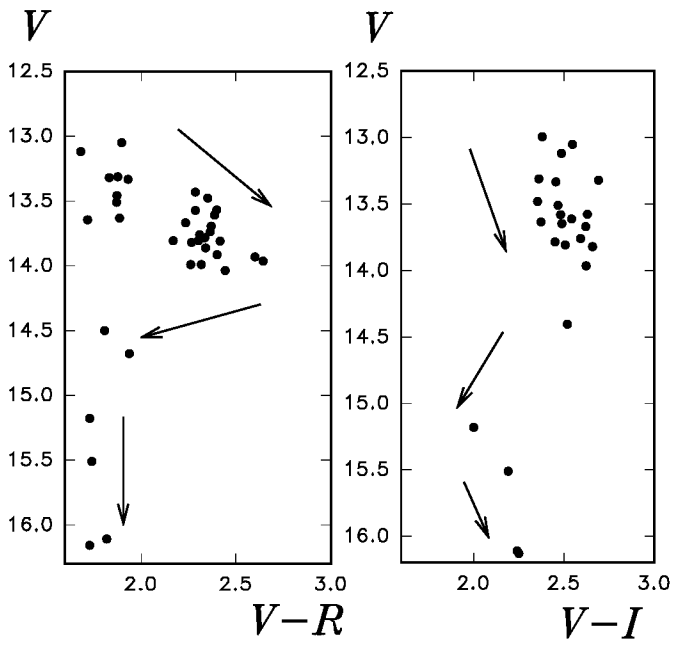

FIGURE 4. Outburst decline in $V, V-R$ and $V, V-I$ diagrams.

ACKNOWLEDGMENTS

This study was partially supported by Ukrainian Fund Fundamental Researches 02/07/00451, by Russian Foundation of Base Research's grants 00-15-96553, 0202-1642, 02-02-26723 and grant No.1.4.2.2 of Russian scientific and technical program "Astronomy". Authors are grateful to the Conference LOC for supporting their participation in the Conference.

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