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CCD PHOTOMETRY OF V1500 CYGNI IN 1987 AND 1989

Seventy-one "V" CCD images of V1500 Cygni (Nova Cygni 1975) were obtained by D. Pascu, R. E. Schmidt, and P. K. Seidelmann in 1987 and 1989 using the U. S. Naval Observatory 1.55-meter astrometric reflector at Flagstaff, Arizona. The Caltech Mark IV 800 x 800 charge-coupled device (CCD) camera, with a Space Telescope F569W wide "V" filter was used. Comparison stars were C1, C2, and C3, as defined by Kaluzny and Semeniuk (1987). The following expressions were used in the reductions:

$$\begin{aligned} \text{Max (HJD)} &= 2443369.7169 + 0.1396131 * E. & (1) \\ \text{Min (HJD)} &= 2443369.6546 + 0.1396131 * E. & (2) \end{aligned}$$

Differential magnitude light curves were constructed with phase given by equation (1). Instrumental magnitudes of the nova were converted to "V" magnitudes using the Kaluzny and Semeniuk (1987) values for C1 and C3. Figure 1 shows the light curve for 5 August, 1989. Vertical bars are standard errors of DAOPHOT aperture photometry (Stetson, 1987). Horizontal bars indicate length of exposures (200 seconds). The nova's mean "V" magnitude was 17.75 on 5 August, 1989, continuing its slow decline at the present rate of 0.23 magnitude per year. The maximum "V" magnitude was 17.17 +/- 0.03 and the minimum was 18.55 +/- 0.05. Flickering of amplitude 0.2 "V" magnitude at maxima and minima was observed.

Times of maxima and minima obtained by Pogson's method are compared to the above ephemerides (Table I). Figures 2 and 3 show our times of maximum and minimum (solid dots) with all known observations in the literature (crosses). The following references contributed times of observed maxima or minima: Semeniuk et al. (1977), Patterson (1979), Lanning and Semeniuk (1981), Pavlenko and Prokof'eva (1981), Pavlenko (1982,1983), Kruszewski (1983), Kaluzny and Semeniuk (1987). A least-squares fit of all positive cycles indicates corrections of -0.0053 day to the epoch of maximum in equation (1), and of -0.0056 day to the epoch of minimum in equation (2), yielding the following linear ephemerides:

$$\begin{aligned} \text{Max (HJD)} &= 2443369.7116 + 0.1396131 * E. & (3) \\ \text{Min (HJD)} &= 2443369.6490 + 0.1396131 * E. & (4) \end{aligned}$$

No significant change to the period was detected.

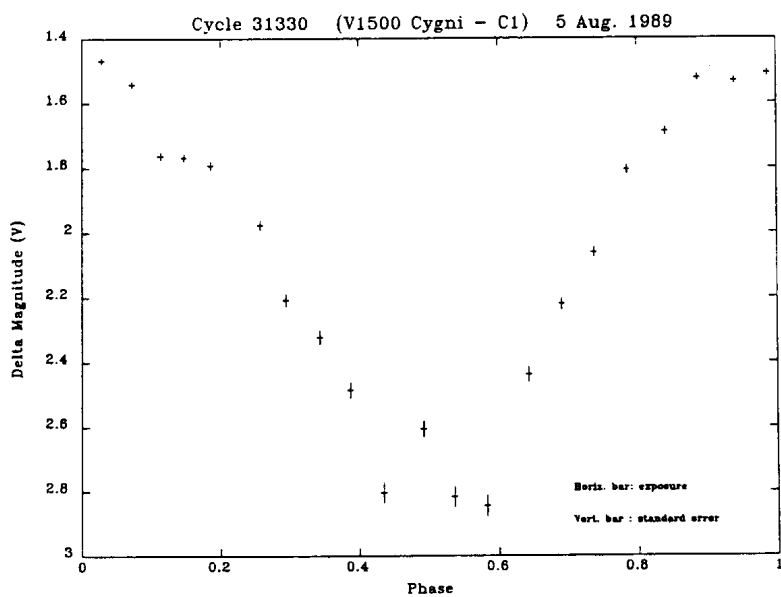


Figure 1

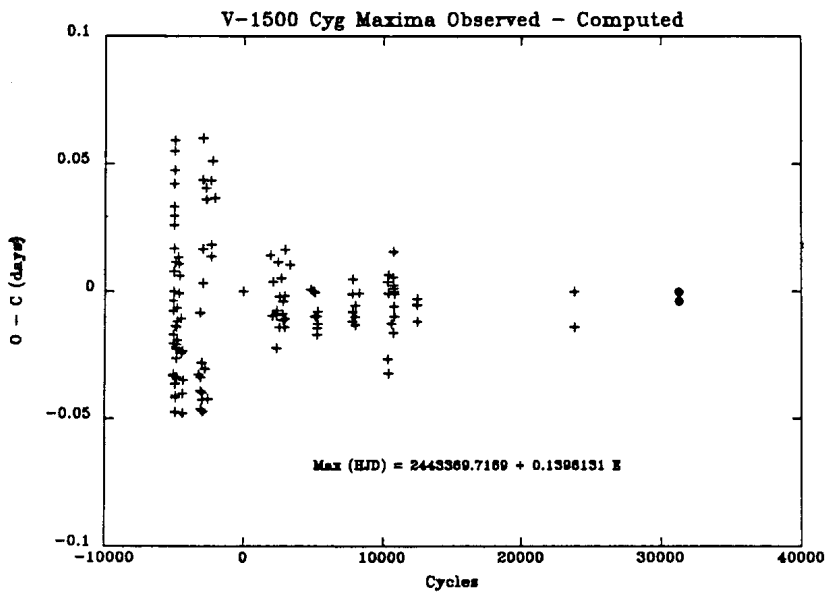


Figure 2

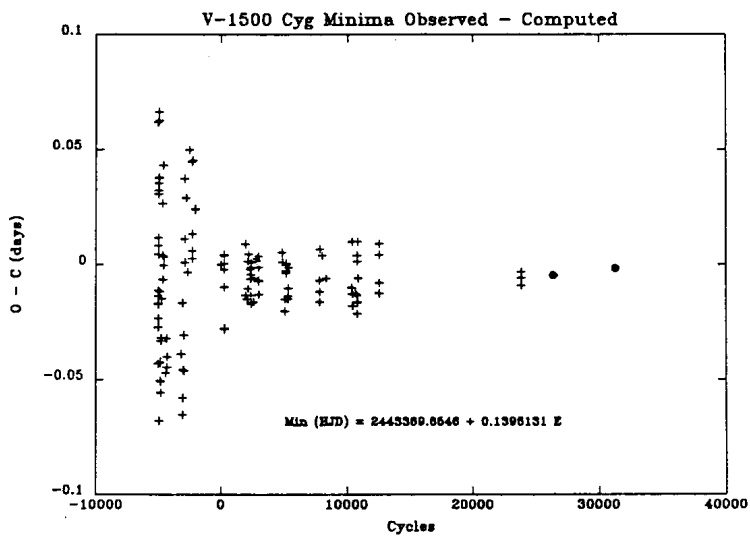


Figure 3

Table 1. Observed epochs of maximum and minimum

HJD Maximum	HJD Minimum	Cycle	(O-C)
	2447055.715	26401	-0.005
	2447743.871	31330	-0.002
2447743.931		31330	-0.004
2447744.912		31337	-0.000

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