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PHOTOELECTRIC PHOTOMETRY OF RHO CASSIOPEIAE

The star Rho Cassiopeiae (Rho Cas, HD 224014, = SAO 035879) was observed with the 0.6 meter Cassegrain telescope and a STARLIGHT-1 photon counting photometer at the University of Northern Iowa (UNI) Hillside Observatory using standard B and V filters. HD 223173 (=SAO 035763, K3II, V=5.51m, B-V=1.65) was used as the comparison star. Rho Cas is a supergiant (F8pIa) star (Percy, and Keith 1985). It has been a known variable for 86 years (Pickering, 1901), much of the time being confined to a brightness between 4.1m to 5.1m (Bailey, 1978). Between August 1945 and June 1947 the star decreased in brightness to 6.8m. (Gaposchkin, 1949) after which it recovered to 4.5m to 4.9m (Bailey, 1978). More recent reports, (January to June 1986) show the magnitude of Rho Cas varying less than 0.1m (Taylor, 1986).

Since June 1986 observations at UNI in both blue and visual colors have indicated that Rho Cas has increased in brightness approximately 0.71m in the visual and 0.98m in the blue. The obtained differential magnitudes in the sense of Rho Cas - HD 223173 are given in Table I, which are also plotted in Figure 1 and Figure 2.

Table I

Photoelectric observations of Rho Cassiopeiae

J.D. 2446000+	ΔV	$\Delta B-V$
604.665	-0.5433	-0.1042
610.710	-0.5448	-0.1265
613.672	-0.5497	-0.1479
613.721	-0.5837	-----
614.733	-0.5967	-0.0863
614.802	-0.5864	-0.1168
615.724	-0.5801	-0.1364
616.701	-0.5992	-0.0828
623.757	-0.6551	-----
624.666	-0.6437	-0.0903
626.651	-0.6376	-0.0913
627.710	-0.6613	-0.0692
628.693	-0.6622	-0.0832

Table I Continued

J.D. 2446000+	▲ V	▲ B-V
629.736	-0.6709	-0.0895
631.708	-0.6896	-0.0751
632.692	-0.6901	-0.0713
633.704	-0.6897	-0.0842
635.682	-0.6911	-0.0890
637.673	-0.7202	-0.0994
638.660	-0.7178	-0.0691
649.655	-0.7780	-0.1123
651.632	-0.8040	-0.0514
655.639	-0.8055	-0.0815
664.676	-0.8032	-----
670.616	-0.8156	-0.0858
671.663	-0.8051	-----
674.591	-0.8383	-0.0789
675.665	-0.8541	-0.0559
678.642	-0.8597	-0.0876
680.638	-0.8546	-0.1134
681.658	-0.8764	-0.0908
686.573	-0.9095	-0.1109
699.547	-0.9765	-0.0494
701.622	-0.9447	-0.1681
701.720	-0.9533	-----
704.544	-0.9639	-0.1550
705.625	-0.9774	-----
708.547	-0.9918	-0.1670
708.621	-0.9938	-----
709.550	-0.9841	-0.1798
711.540	-0.9893	-----
713.545	-0.9644	-0.2419
718.585	-1.0618	-0.2091
720.536	-1.0386	-----
722.530	-1.0581	-0.1719
731.516	-1.0020	-0.2299
737.527	-1.0444	-0.2040
740.684	-1.0410	-----
743.548	-1.0595	-0.2265
749.538	-1.0676	-----
759.542	-1.0944	-0.2541
769.546	-1.1415	-0.2270
775.523	-1.1434	-0.2593
783.542	-1.1750	-0.2979
800.600	-1.2401	-0.3515
804.559	-1.2393	-0.3454
808.544	-1.2372	-0.3357
811.553	-1.2436	-0.3709
814.531	-1.2324	-0.3514
819.520	-1.2461	-0.3414
820.592	-1.2517	-----
826.577	-1.2646	-0.3504

Table I Continued

J.D. 2446000+	V	B-V
828.521	-1.2638	-0.3575
833.524	-1.2514	-0.3476
834.545	-1.2608	-0.3537
835.541	-1.2657	-0.3341
837.686	-1.2601	-----
838.529	-1.2606	-0.3559
839.641	-1.2870	-0.3496
844.671	-1.2546	-0.3667
850.542	-1.2747	-0.3331
856.730	-1.2590	-----
857.683	-1.3330	-0.2086
858.650	-1.2647	-0.3622
859.548	-1.2665	-0.3184
862.566	-1.2739	-0.3199
888.701	-1.1552	-0.2532
889.597	-1.2058	-0.2650
890.513	-1.1635	-0.2810
891.574	-1.1642	-0.3222
892.636	-1.1393	-0.3259
893.615	-1.2319	-0.2244
894.578	-1.1785	-0.2611

Figure 1

RHO CAS - VISUAL FILTER

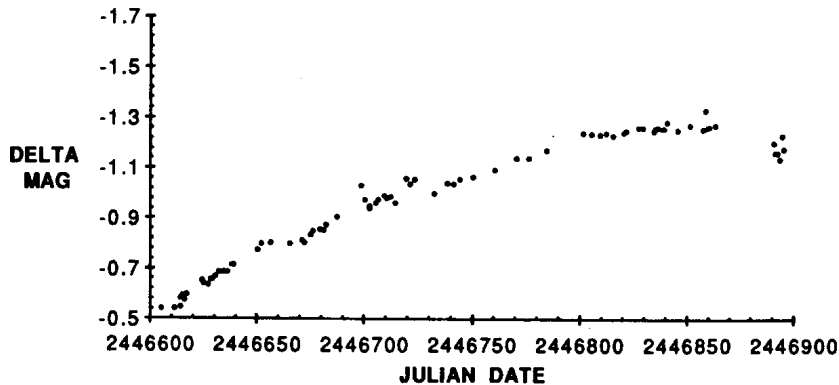
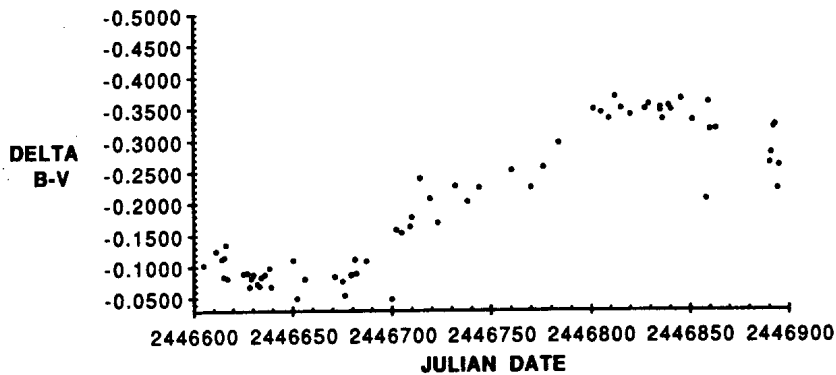


Figure 2
RHO CAS - DELTA B-V



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References:

- Bailey, J. 1978, Rho Cassiopeiae, 1964-1975, Journal of the British Astronomical Association, Vol. 88, No. 4. p. 397-401
- Gaposchkin, S., 1949, Harvard College Observatory Bulletin, Number 919, p. 18-19
- Percy, J.R. and Keith, D., 1985, The Quasi-Cepheid Nature of Rho Cassiopeiae, in: Cepheids: Theory, and Observations, 1985, Barry F. Madore, p. 89-90
- Pickering, E.C., 1901, Sixty-Four New Variable Stars, Harvard College Observatory, Circular Number 54.
- Taylor, M., 1986, British Astronomical Association Variable Star Section extract from circular 65 Page a.