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UBV PHOTOMETRY OF THE R CORONAE BOREALIS STAR RY Sgr - 1984 TO 1986

Photoelectric observations of the R Coronae Borealis (RCB) star, RY Sgr, have been obtained at Mount John University Observatory (MJUO) between JD 2445923 (1984 August 11) and JD 2446768 (1986 December 4) as part of an ongoing survey of southern RCB stars. The observations prior to JD 2446733 were obtained with the 0.6-m photometric reflector. Observations after this date were obtained with the recently commissioned 1-m reflector. The measurements were made with a photometer equipped with an EMI 6094B photomultiplier tube (S11 photocathode) and UBV filters as described by Bessell (1976).

The magnitude and colours of the comparison star SAO 211100 ($V = 7.50$, $B-V = 0.04$, $U-B = 0.05$) were established after the derivation of the photoelectric constants from observations of E-region standards at MJUO. The magnitude and colours of the check star SAO 211115 ($V = 7.52$, $B-V = 0.16$, $U-B = 0.15$), determined differentially, were found to be consistent to within 0.01 magnitudes in V and 0.02 magnitudes in $B-V$ and $U-B$. The UBV observations of RY Sgr are listed in Table I.

The light and colour curves for the observations obtained in 1984 and 1986 are reproduced in Figures 1 and 2 respectively. The duration of the semi-regular pulsations varies between 33 and 40 days with an average value of 37 days.

We note that, during 1984, RY Sgr was still recovering from a 6 magnitude obscurational decline in 1982 (Lawson, Cottrell and Bateson 1987). Maxima on

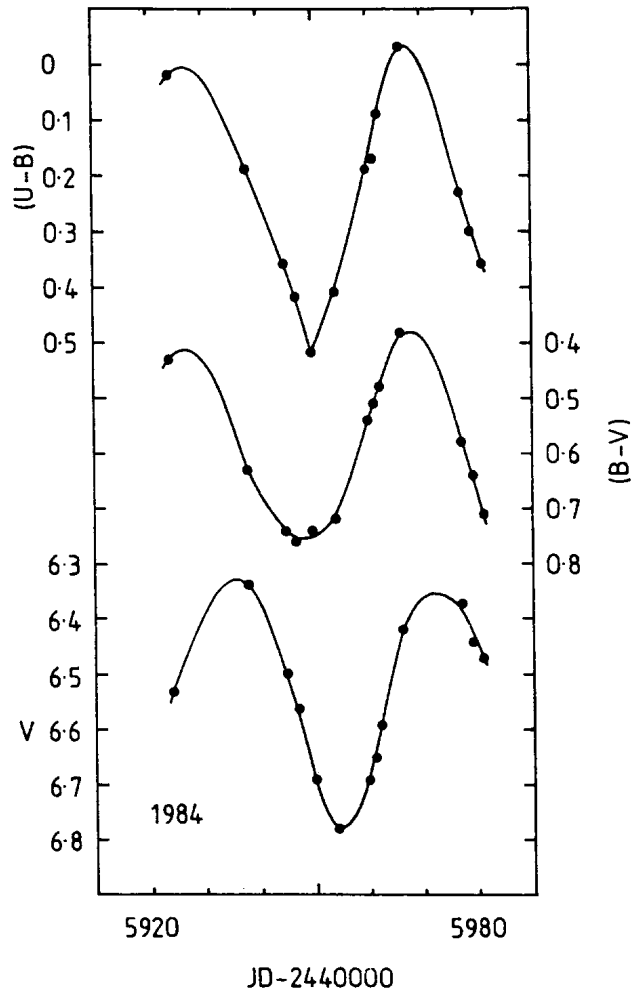


Figure 1 : Light and colour curves of RY Sgr during 1984.

Table I. Photoelectric observations of RY Sgr.

	JD-2440000	V	B-V	U-B	JD-2440000	V	B-V	U-B
1984	5923.90	6.53	0.43	0.02	5960.89	6.65	0.51	0.17
	5937.89	6.34	0.63	0.19	5961.85	6.59	0.48	0.09
	5944.85	6.50	0.74	0.36	5965.95	6.42	0.38	-0.03
	5946.95	6.56	0.76	0.42	5976.85	6.37	0.58	0.23
	5949.83	6.69	0.74	0.52	5978.94	6.44	0.64	0.30
	5953.98	6.78	0.72	0.41	5980.85	6.47	0.71	0.36
	5959.88	6.69	0.54	0.19				
1985	6189.13	6.56	0.48	0.03	6324.86	6.54	0.60	0.36
	6233.04	6.41	0.39	-0.04	6327.86	6.50	0.72	0.40
	6234.07	6.36	0.38	0.05	6328.92	6.54	0.68	0.41
	6275.90	6.22	0.45	0.01	6338.88	6.72	0.66	0.25
	6281.92	6.31	0.59	0.22	6367.88	6.38	0.58	0.23
	6283.96	6.36	0.66	0.27				
1986	6582.95	6.23	0.46	0.03	6667.12	6.37	0.72	0.29
	6584.08	6.18	0.45	0.03	6686.85	6.43	0.49	-0.02
	6586.98	6.15	0.49	0.05	6694.81	6.25	0.53	0.01
	6598.11	6.24	0.65	0.19	6696.08	6.24	0.54	-
	6599.13	6.27	0.64	0.18	6696.90	6.26	0.56	0.06
	6600.08	6.30	0.64	0.18	6698.92	6.26	0.58	0.11
	6615.09	6.41	0.53	0.00	6710.85	6.49	0.71	0.27
	6627.08	6.26	0.69	0.23	6717.94	6.55	0.68	0.25
	6628.04	6.28	0.70	0.24	6719.88	6.50	0.66	0.21
	6628.89	6.30	0.70	0.25	6722.95	6.44	0.53	0.10
	6633.88	6.40	0.72	0.26	6724.88	6.35	0.49	0.05
	6638.01	6.46	0.70	0.24	6730.88	6.25	0.56	0.11
	6638.88	6.47	0.69	0.23	6731.89	6.25	0.57	0.13
	6647.93	6.36	0.44	-0.07	6733.93	6.23	0.64	0.18
	6648.89	6.33	0.42	-0.09	6734.91	6.26	0.62	0.17
	6655.96	6.21	0.50	-0.01	6743.86	6.34	0.71	0.29
	6656.93	6.21	0.53	0.01	6744.94	6.37	0.71	0.28
	6658.10	6.23	0.54	0.08	6766.89	6.16	0.48	-
	6662.84	6.26	0.65	0.19	6768.89	6.13	0.47	-0.01

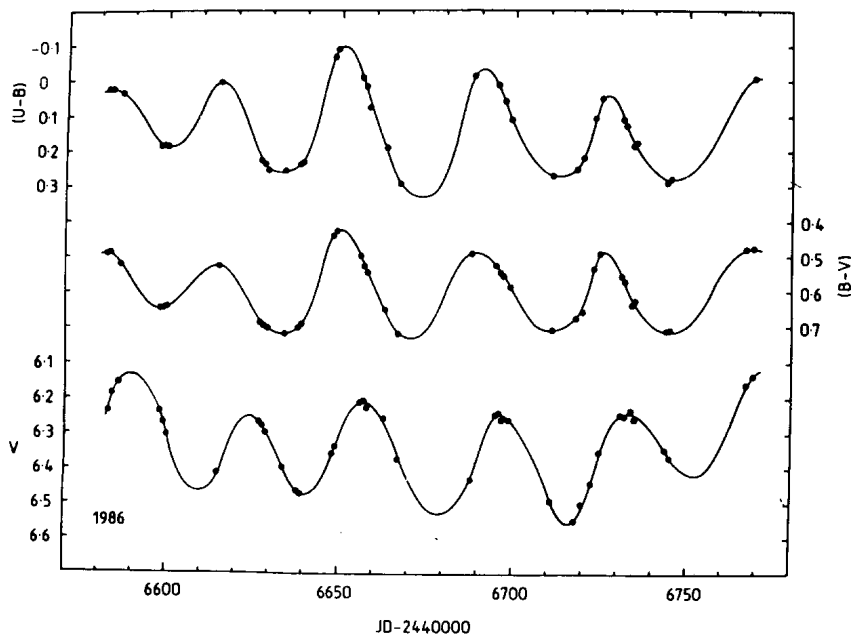


Figure 2 : Light and colour curves of RY Sgr during 1986.

the V light curve during 1984 were 0.1 to 0.2 magnitudes fainter than those during 1986.

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