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OPTICAL MINIMUM OF V1057 Cyg IN 1995

V1057 Cyg is a member of the FU Orionis-type eruptive variables or Fuors (Herbig 1977, 1989; Hartmann et al., 1993). Since the time of its flare-up, V1057 Cyg has shown more dynamic large-scale photometric changes in comparison with other Fuors (e.g., Kolotilov 1990). In the course of ROTOR project carried out in Mt.Maidanak observatory a detailed study of the photometric behavior of V1057 Cyg was performed. The observations of the star were obtained using Mt.Maidanak 0.6-m Zeiss telescope with Johnson UBVR pulse counting photometer. A total of 1420 observations of the Fuor were recorded which cover 15 observing seasons between 1981 and 1995 and the log of observations is listed in Table 1. A small sample of the observations obtained at the same conditions in 14 nights 1978 is included in the Table as well. Table 1 is organized as follows. The season characteristics are given in first two columns. Averaged seasonal brightness and colors and their r.m.s. values are given in next four columns. In the last four columns, N_v, N_{ub}, N_{bv} and N_{vr} represent the corresponding number of the observations. Light curves of the Fuor in U, B, V and R bands plotted using the Maidanak observations are shown in Figure 1.

As one can see, in 1978-1990 the brightness of V1057 Cyg smoothly decreased from 10.89 to 11.59 mag in V. In 1991-1994 the Fuor showed zigzag-like light variations. The amplitude of these variations increased each year. At the same time colors changed in antiphase to brightness: higher brightness corresponded to redder colors and vice versa. Early 1995 observations showed that the star suddenly dimmed by 0.7 mag in B. The minimum brightness B = 14.58 was reached on 10 August 1995. The full amplitudes of the 1995 fading related to the 1994 average brightness of the star are 1, 0.8, 0.6 and 0.5 mags in U, B, V and R respectively. The optical minimum of V1057 Cyg in 1995 is very similar to the minimum of V1515 Cyg in 1980. In this case a considerable increase in the brightness of V1057 Cyg brightness may be expected in the nearest future. Spectral observations in wide region as well as infrared and polarimetric observations will be important in this minimum stage of the star.

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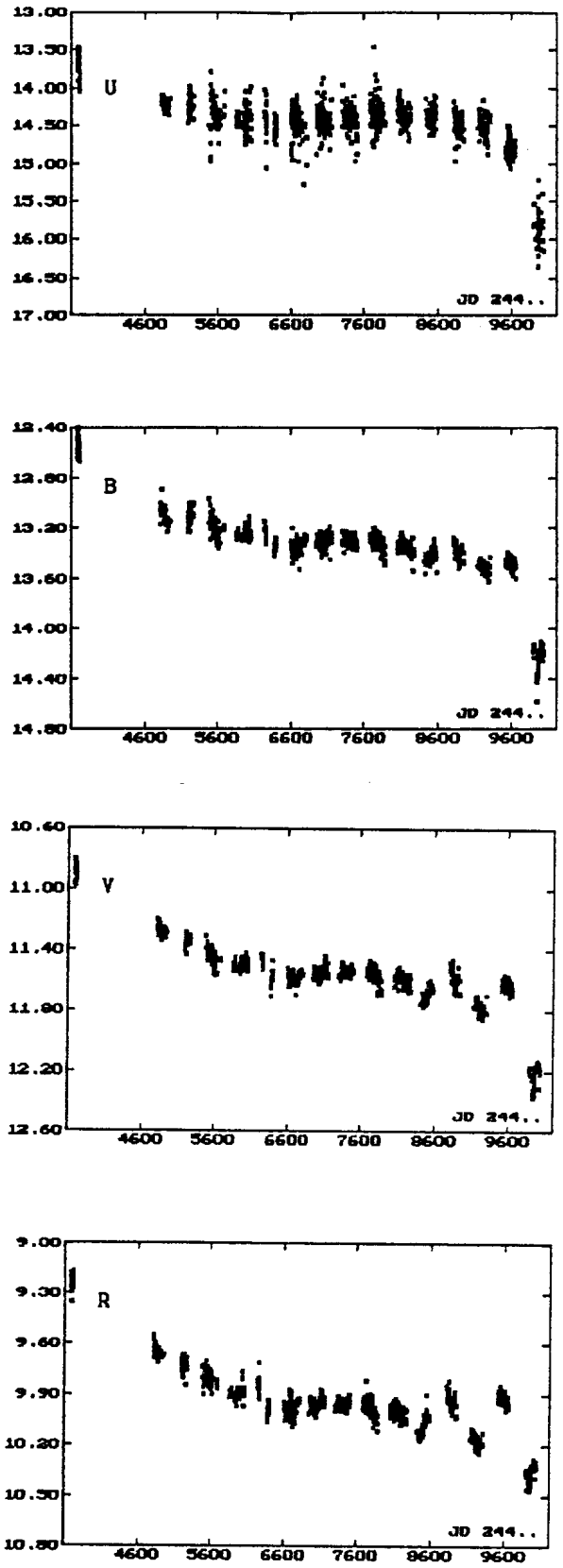

Figure 1. Light curve of V1057 Cyg in U, B, V and R bands during 1978 and 1981-1995.

Table 1. Maidanak monitoring of V1057 Cyg in 1978, 1981-1995

Year	JD (2440000)	⟨V⟩ σ_v	⟨U−B⟩ σ_{ub}	⟨B−V⟩ σ_{bv}	⟨V−R⟩ σ_{vr}	N_v	N_{ub}	N_{bv}	N_{vr}
1978	3693-	$10^m.889$	$+1^m.171$	$+1^m.667$	$+1^m.666$	56	30	56	41
	3716	38	167	34	47				
1981	4812-	11.269	+1.117	+1.819	+1.622	78	41	76	77
	4942	31	052	42	18				
1982	5200-	11.354	+1.138	+1.753	+1.637	50	43	50	50
	5272	26	097	32	25				
1983	5489-	11.451	+1.169	+1.748	+1.645	76	71	75	74
	5696	47	162	38	35				
1984	5864-	11.508	+1.179	+1.745	+1.614	70	66	68	67
	6061	28	140	25	20				
1985	6241-	11.537	+1.179	+1.759	+1.610	38	37	38	38
	6402	71	180	39	39				
1986	6607-	11.592	+1.149	+1.748	+1.606	106	97	102	106
	6806	28	188	39	36				
1987	6955-	11.558	+1.102	+1.755	+1.594	107	101	107	107
	7152	36	153	34	17				
1988	7309-	11.546	+1.083	+1.762	+1.585	136	130	136	136
	7507	22	125	27	16				
1989	7683-	11.559	+1.030	+1.756	+1.587	139	100	138	137
	7887	42	173	31	19				
1990	8049-	11.589	+1.032	+1.756	+1.592	133	83	133	133
	8279	35	115	27	15				
1991	8419-	11.689	+0.987	+1.741	+1.600	100	50	100	94
	8586	42	121	30	22				
1992	8815-	11.588	+1.134	+1.804	+1.654	80	68	79	79
	8954	53	114	21	16				
1993	9141-	11.782	+0.993	+1.737	+1.613	109	81	109	109
	9310	32	113	24	13				
1994	9514-	11.628	+1.324	+1.852	+1.707	91	66	91	90
	9647	34	110	26	14				
1995	9882-	12.237	+1.595	+2.022	+1.869	51	36	51	51
	10022	72	239	43	33				

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