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**FURTHER PHOTOELECTRIC OBSERVATIONS
OF VW Cep IN R AND I**

The present report announces a sequel of the report which appeared in a previous issue of this publication (Arai, 1991). We wish to report on several findings resulting from our observations of the variation of time of minima over several years.

As before, the observations were made with the 28-cm ($f=2,800\text{mm}$) Schmidt Cassegrain telescope, equipped with a single channel R I photometer (SSP-3, Optec Inc.) and Schott standard filters. The observations were performed altogether during 31 nights between December 1989 and November 1993. The total number of observations obtained were 1514 points for each color (Table 1).

Throughout the course of the present observations we assumed constancy of the brightness of BD+74°889.

All the observations have been transformed to Johnson's standard system. The obtained light and color curves in R and I in 1993 are shown in Figure 1.

Figure 2 shows the O-C diagram where the data of Glowina (1988), Lloyd et al. (1992), Navratil (1994), Vinkó (1989, 1993) and Wunder (1992) are also plotted together. Figure 2 clearly indicates that the period abruptly changed in about 1990, being in agreement with the previous result by Lloyd et al. (1992). We obtained the new light elements:

$$\text{Min(Hel. JD)}=2448155.0724+0^d.27830526\times E$$

Figure 3 depicts the variations of ΔR , ΔI at maxima and minima respectively. It is noticeable from Figure 3 that the maxima I and II have clearly changed between 1992 and 1993.

Table 1. The data of present observations

Season	Nights	Data points	minima I	minima II
1989 Dec. - 1990 Jan.	9	499	4	2
1990 Sep. - 1990 Nov.	6	271	5	2
1991 Nov. - 1991 Dec.	6	234	4	2
1992 Oct. - 1992 Nov.	6	340	4	5
1993 Oct. - 1993 Nov.	3	170	3	2

Table 2. New times of minima of VW Cep

Filter :			I		
Hel. J.Day	R	O-C	Hel. J.Day	E	O-C
244...			244...		
7892.0693	-945	-0.0046	7892.0698	-945	-0.0041
7895.9649	-931	-0.0053	7895.9641	-931	-0.0061
7896.9416	-927.5	-0.0027	7896.9403	-927.5	-0.0040
7899.0270	-920	-0.0046	7899.0274	-920	-0.0042
7905.0135	-898.5	-0.0016	7905.0121	-898.5	-0.0030
7912.9418	-870	-0.0050	7912.9439	-870	-0.0029
8155.0724	0	0.0000	8155.0735	0	0.0011
8185.9649	111	0.0006	8185.9650	111	0.0007
8191.9483	132.5	0.0005	8191.9486	132.5	0.0008
8200.9943	165	0.0015	8200.9940	165	0.0012
8206.0017	183	-0.0006	8206.0019	183	-0.0004
8206.1428	183.5	0.0014	8206.1423	183.5	0.0009
8219.9146	233	-0.0029	8219.9170	233	-0.0005
8600.0835	1599	0.0010	8600.0834	1599	0.0010
8602.0300	1606	-0.0007	8602.0307	1606	0.0001
8603.0063	1609.5	0.0016	8603.0091	1609.5	0.0044
8603.9812	1613	0.0024	8603.9819	1613	0.0031
8606.9049	1623.5	0.0039	8606.9042	1623.5	0.0032
8607.0386	1624	-0.0016	8607.0392	1624	-0.0010
8920.9686	2752	0.0001	8920.9689	2752	0.0004
8921.1071	2752.5	-0.0005	8921.1050	2752.5	-0.0026
8923.0538	2759.5	-0.0020	8923.0532	2759.5	-0.0026
8927.9264	2777	0.0003	8927.9264	2777	0.0003
8928.0644	2777.5	-0.0009	8928.0646	2777.5	-0.0007
8929.0411	2781	0.0018	8929.0395	2781	0.0002
8929.1750	2781.5	-0.0035	8929.1758	2781.5	-0.0027
8949.9108	2856	-0.0014	8949.9104	2856	-0.0018
8950.0474	2856.5	-0.0040	8950.0483	2856.5	-0.0031
9284.1569	4057	0.0000	9284.1567	4057	-0.0002
9284.0163	4056.5	-0.0014	9284.0176	4056.5	-0.0001
9284.9912	4060	-0.0008	9284.9915	4060	-0.0003
9292.9246	4088.5	0.0011	9292.9225	4088.5	-0.0010
9293.0633	4089	0.0007	9293.0626	4089	-0.0000

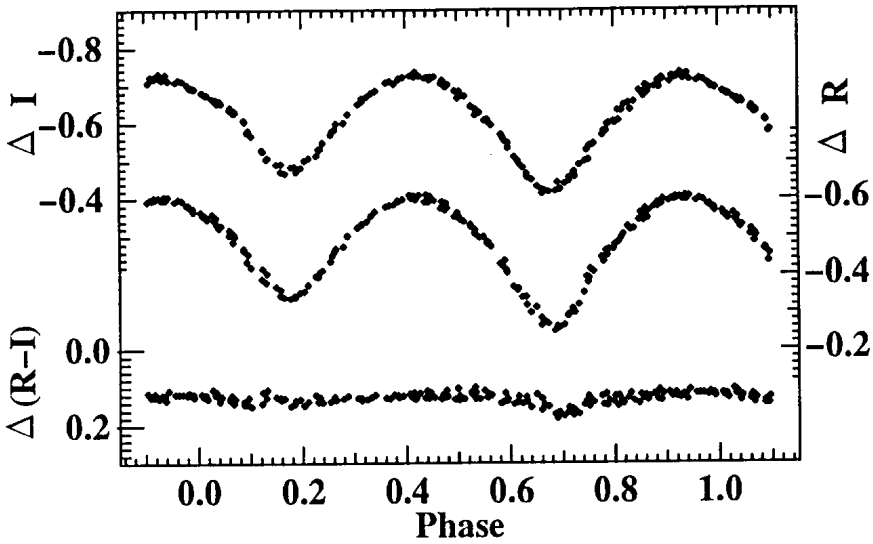


Figure 1. Light and color curves of VW Cep.

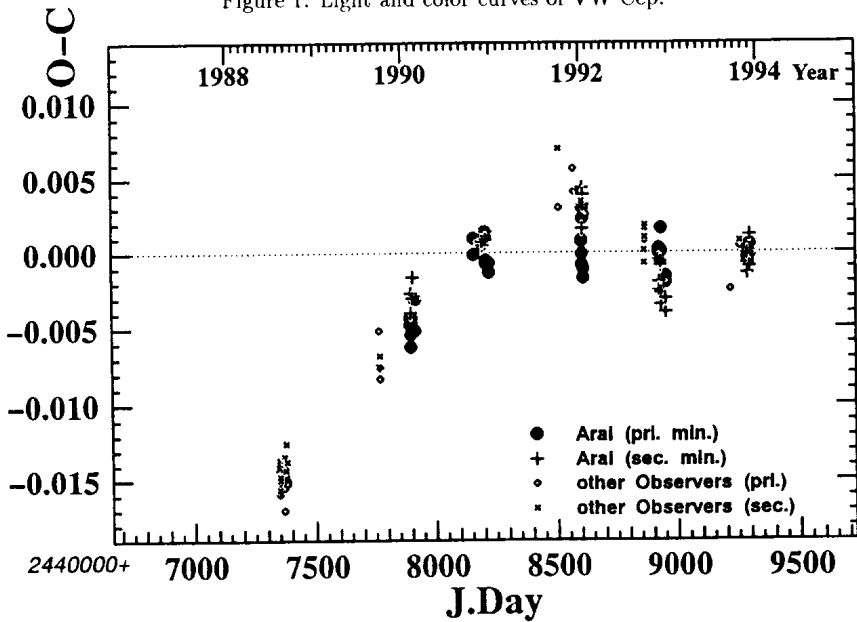


Figure 2. O-C diagram of VW Cep.

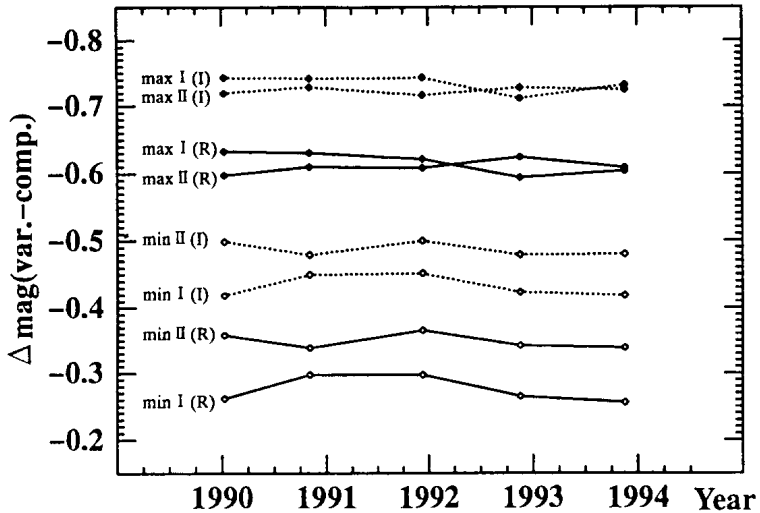


Figure 3. Variations of maxima and minima of VW Cep.

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¹JAPOA: Japan Amateur Photoelectric Observers Association