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PHOTOGRAPHIC PHOTOMETRY OF THE MIRA STAR S ORI

The star S Ori is reported in the GCVS (Kholopov et al., 1985) as a Mira Ceti star with a period of 414.3 days, a spectral type of M6.5e - M9.5e and an amplitude of variation between V_{max} of $7^m.2$ and V_{min} of $14^m.0$.

The current photographic photometric values presented here were obtained from the plate collection of the INAOE at Tonantzintla, Mexico. Twenty four plates taken with the Schmidt camera in the U filter of Johnson's system in a time span from 1971 to 1978 were selected.

In order to obtain the variation of S Ori, a set of 16 standard stars from the catalogue of Andrews (1981) were considered. Table I lists the plates utilized, whereas Table II presents the standard stars. The apparent magnitudes of these stars cover the expected amplitude of variation of S Ori.

The image diameters of both the programme star and the standard stars were measured with the PDS microdensitometer of the INAOE. For the diameters determined in each plate, a least squares fit to a straight line was carried out. The mean percentual error of the measurements of the diameter of S Ori is of 0.032 ± 0.018 which yields an accuracy of each point of less than 0.1 mag.

The final magnitude values of S Ori as well as the corresponding HJD are presented in Table III. Figure 1 shows the magnitude variation with phase determined with the period proposed by Kholopov et al. (1985). The amplitude of variation of S Ori found is 5.6 mag within the limits 9.0 mag at maximum light and 14.4 mag at minimum.

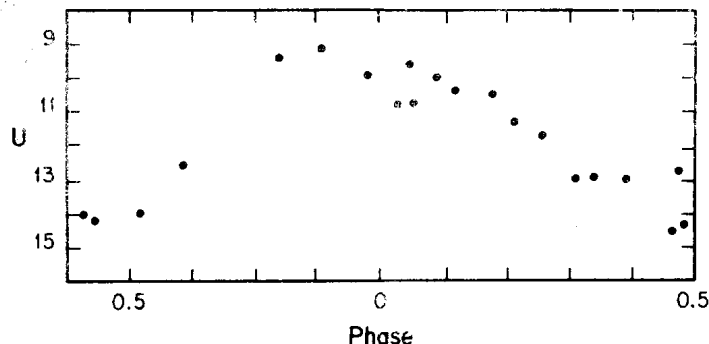


Figure 1. Phase diagram of S Ori. The period utilized is that of Kholopov et al. (1985).

Table 1. List of the utilized plates.

Plate	Date	Observer
ST5330	DEC 15/16,71	E. Chavira
ST5620	DEC 07/08,72	E. Chavira
ST5652	DEC 28/29,72	E. Chavira
ST5660	JAN 02/03,73	E. Chavira
ST6028	JAN 20/21,74	E. Chavira
ST6231	NOV 22/23,74	E. Chavira
ST6354	MAR 07/08,75	E. Chavira
ST6573	DEC 27/28,75	J. Campos
ST6615	FEB 21/22,76	E. Chavira
ST6655	MAR 04/05,76	E. Chavira
ST6669	MAR 32/24,76	E. Chavira
ST6921	DEC 21/22,76	J. Campos
ST6929	JAN 08/09,77	E. Chavira
ST6944	JAN 20/21,77	E. Chavira
ST6958	FEB 14/15,77	E. Chavira
ST6987	MAR 19/20,77	E. Chavira
ST7064	NOV 16/17,77	E. Chavira
ST7083	DEC 16/17,77	E. Chavira
ST7114	JAN 14/15,78	E. Chavira
ST7121	FEB 01/02,78	E. Chavira
ST7141	FEB 11/12,78	E. Chavira
ST7162	MAR 08/09,78	E. Chavira
ST7275	NOV 02/03,78	E. Chavira

Table 2. Standard Stars

No.	No. ANDREWS	U	B	V	PARENAGO or HD
1	92	---	8.88	8.82	HD36957
2	136	---	7.66	7.64	HD36629
3	139	---	13.47	11.87	P1049
4	140	12.03	---	11.52	P1179
5	141	15.07	15.04	14.03	P1092
6	144	1386	13.75	13.03	P1122
7	150	---	7.98	8.09	HD36842
8	165	---	14.95	13.90	P1143
9	9123	11.26	---	10.34	P1037
10	9128	13.64	12.47	11.12	P1036
11	7635	12.95	12.74	12.03	P1287
12	7598	14.05	13.46	12.59	P1304
13	6895	11.28	11.16	10.55	P1467
14	6933	13.97	13.51	12.73	P1523
15	6890	15.12	---	13.33	P1582
16	6252	6.88	7.44	7.56	HD36936

Table 3. Photographic Photometry of S Ori

HJD-24000	U
1301.8656	13.835
1659.8427	14.190
1680.8112	14.003
1685.7843	14.150
2068.8037	12.566
2374.7996	11.207
2479.6043	14.380
2830.6423	12.916
2842.6129	12.804
2861.5784	12.890
3134.7167	9.550
3152.5626	9.884
3164.5981	10.294
3189.7034	10.375
3222.5666	11.637
3464.8674	9.408
3494.8608	9.086
3523.7515	9.838
3541.7064	10.690
3551.5723	10.616
3576.5716	10.269
3815.7545	12.497

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