

FO VIRGINIS : 1977 OBSERVATIONS

RIASSUNTO - Sono qui presentati i risultati dell'analisi di 1223 stime visuali di FO Vir effettuate nel 1977 (vedere Tab. 1) da 11 osservatori del GEOS. Il compositage delle misure di MIS (vedere Fig. 2 e Tab. 3) confermano molto bene i risultati già pubblicati da POI (vedere referenze (1) e (2)). Il confronto tra le curve POI e MIS è presentato nella Tab. 2. I massimi individuali, elencati nella Tab. 4, hanno permesso il calcolo dell'effemeride (B), un po' più precisa di quella già pubblicata da POI ed indicata (A).

RESUME - On présente les résultats de l'analyse des 1223 estimations visuelles de FO Vir effectuées en 1977 (voir Tableau 1) par 11 observateurs du GEOS. Le compositage des mesures de MIS (voir Fig. 2 et Tab. 3) confirme très bien les résultats déjà publiés par POI (voir références (1) et (2)). La comparaison entre les courbes POI et MIS est présentée sur le Tableau 2. Les maxima individuels, listés dans le Tableau 4, ont permis le calcul d'une éphéméride (B) un peu plus précise que celle déjà publiée par POI, et notée (A).

1. INTRODUCTION

The period of FO Virginis and its classification as an RR Lyr type variable (RRc) were first proposed by E. PORETTI ((1),(2)) using his 325 visual estimates performed in 1977.

The proposed ephemeris was :

$$(A) \quad \text{MAX} = \text{J.D. hel. } 24\,43\,271.718 + 0.28590 \cdot E \\ \pm .013 \quad \pm .00017$$

2. OBSERVATIONS

In fact, 1223 visual estimates of FO Vir were performed in 1977 by 11 GEOS observers (table 1).

Observer	Site	Initials	n	Observer	Site	Initials	n
PORETTI	Milano(I)	POI	325	PENNA	Asti(I)	MPN	62
MISSON	Paris (F)	MIS	258	BENUCCI	Firenze(I)	BEN	61
ROLLAND	Rennes(F)	ROL	145	TRAVAGLINO	Vigevano(I)	TVG	37
FIGER	Paris (F)	FGR	144	LESTRADE	Salles (F)	LST	11
LUCENTINI	Caldareola(I)	LCN	95	FRANGEUL	Angers (F)	FRL	6
LIVI	Pistoia(I)	LIV	79				

Table 1 - Number n of estimates of FO Vir.

The estimates were made using comparison stars A,C,D from GEOS chart C 62. FO Vir has proved to be a very difficult star to measure, mainly owing to the Carnevali effect (3), when the brightness of the variable is near that of comparison star C. The estimates therefore show a very large scatter and only the 4 series with the greatest number of estimates (POI,MIS,ROL,FGR) allow plotting mean curves ("compositage"). The mean points have been calculated on the basis of ephemeris (A). The mean curve obtained from POI's measures has been published previously (1) and is shown in figure 1, whilst the mean curve obtained from MIS's measures is shown in figure 2, together with table 3 which gives more information on the mean points. The observations by MIS confirm well those by POI, as shown by table 2 which compares the characteristics of both curves. However, mean curves from ROL and FGR are less convincing, but they do show a maximum near the 0 phase, even though they may be difficult to use in view of the large scatter of the measures.

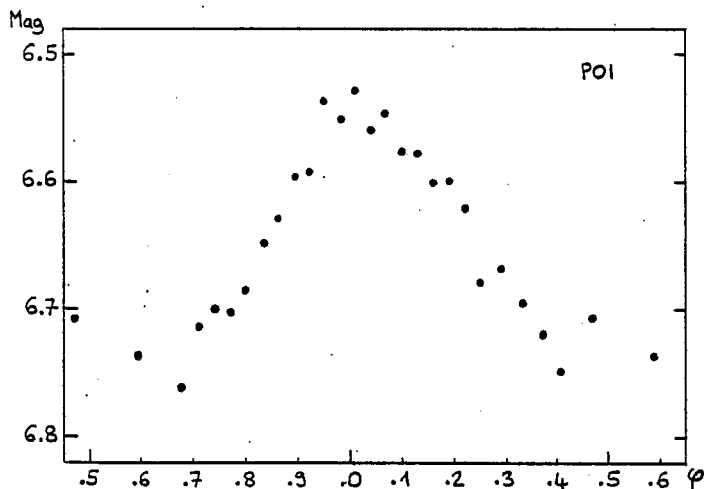


Fig. 1 - Mean light-curve of the 325 estimates by POI (1977)

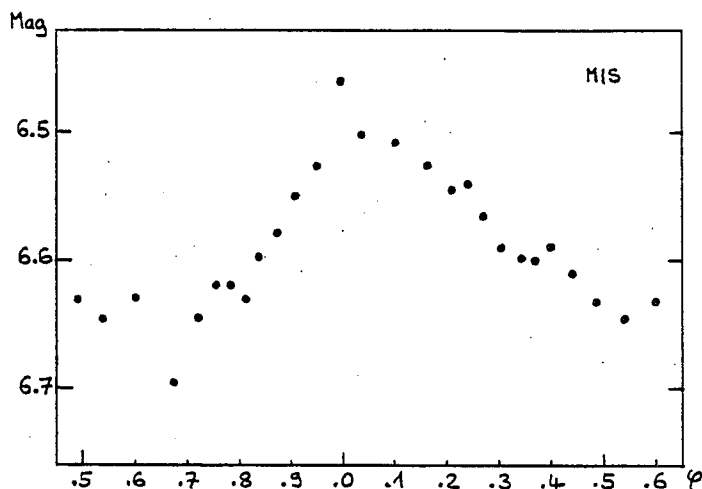


Fig. 2 - Mean light-curve of the 258 estimates by MIS (1977)

	PORETTI	MISSEON
Phase MAX	0.00	0.02
Phase MIN	0.64	0.67
(M-m)	0.36	0.35
O-C	0.	+ 0.006 j
Mag. MAX	6.53	6.48
Mag. MIN	6.77	6.67
Amplitude	0.24 mag	0.19 mag

Table 2 - Comparison of the curves of POI and MIS

φ	n	Mag	φ	n	Mag	φ	n	Mag
.035	10	6.502	.37	13	6.593	.753	11	6.619
.10	8	6.507	.40	12	6.588	.782	16	6.620
.163	6	6.525	.442	10	6.609	.81	11	6.633
.21	10	6.544	.485	10	6.633	.837	13	6.597
.24	12	6.539	.537	7	6.645	.87	11	6.579
.27	16	6.565	.60	6	6.629	.905	9	6.548
.303	17	6.591	.67	4	6.696	.95	11	6.527
.34	15	6.597	.72	11	6.644	.993	9	6.459

Table 3 - Mean phase φ, number n of estimates and mean visual magnitude for the MIS observations, in reference to (A).

3. NEW EPHEMERIS

Table 4 recapitulates the list of all maxima which could be determined from individual lists of measures. The 6 maxima determined by POI and previously published have been included in this table. From all the maxima listed in table 4, a new ephemeris has been calculated using a least square fit which allows a significant reduction of the error band (95% level):

$$(B) \quad \text{MAX} = \text{J.D.hel. } 24\,43\,268.860 + 0.28593 \cdot E$$

$$\pm .005 \quad \pm .00005$$

The maxima determined with 2 decimals only have been given a weight of 0.5.

The last two columns of table 4 give the O - C calculated from both ephemeris (A) and (B). When calculated from ephemeris (B) only, the standard deviation of the O - C is: 0.0095 d or 13.7 mn.

TIME OF MAXIMUM	OBSERVER	O - C	
		(A)	(B)
24 43 223.40	MIS	- 0.001	+ 0.003
241.42	MPN	+ 0.007	+ 0.010
246.54	POI	- 0.019	- 0.017
249.406	FRL	- 0.012	- 0.011
249.42	MIS	+ 0.002	+ 0.003
249.424	BEN	+ 0.006	+ 0.007
249.428	POI	+ 0.010	+ 0.011
250.558	POI	- 0.003	- 0.002
259.418	POI	- 0.006	- 0.006
277.424	POI	- 0.012	- 0.014
285.455	POI	+ 0.014	+ 0.011
291.455	MIS	+ 0.010	+ 0.006
305.458	MIS	+ 0.004	- 0.001
307.455	POI	- 0.001	- 0.006
307.47	LIV	+ 0.015	+ 0.009

Table 4 - List of the observed maxima of FO Vir in 1977

E. PORETTI

REFERENCES

- (1) PORETTI, E., 1977, GEOS NC 165
- (2) PORETTI, E., 1977, IBVS 1336
- (3) GEOS FT 09, 1977 APR, "L'effet Carnevali et sa correction"