NEW ELEMENTS ABOUT V 1125 OPH

INTRODUCTION

V 1125 Oph (16h 55min 11s + 11° 31,2') (2000) was discovered as an eclipsing star with magnitude 11 to 11.5 (p) by C. Hoffmeister (1968) who listed 3 minimum instants.

In September 1994 (NC GEOS n° 750), I published the two first photoelectric measurements of the star and a first ephemeris : JD hel 38899.674 (± 0.019) + 1.8233137 d (± 0.0000078) x E (1) based on the visual estimates of M. Benucci and mines together with the C. Hoffmeister's photographic instants. The number and the accuracy of the minima were not high enough to assure the value of the ephemeris.

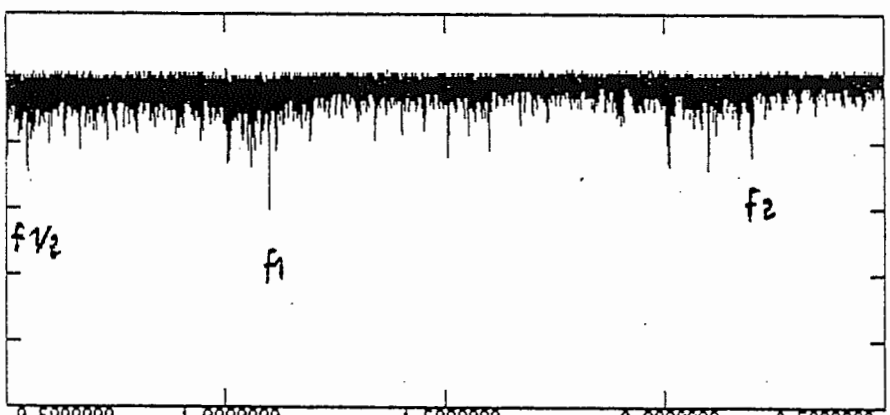
NEW OBSERVATIONS

In 1995, four GEOS observers made more than 10 estimates of V 1125 Oph : CHC, DMT, VBR and VRR. A period research on the 38 estimates of DMT shows a first possibility at 0.455 day, that on the 88 estimates of VBR shows 0.91 day before 0.456 day, whereas the researches on the 38 estimates of CHC and the 69 estimates of VRR were unsuccessfuf. From all the estimates of 1995, only one eclipse was correctly monitored and its instant determined by the tracing-paper method. The moments of 7 others were less precisely obtained from several faint estimates.

NEW PERIOD DETERMINATION

In order to avoid working on an alias period, I made a PDM period research on my 420 estimates of V 1125 Oph going from April 1990 to August 1995 (the only great set of observations). No surprise : 0.912 day is the first possibility with the double period and the half period appearing also(see fig 1). The composited light curves with the other periods show that they have to be rejected.

fig 1 : periodogram obtained with the 420 VBR estimates from 90 to 95 and the first possible periods



P	f	θ	P	f	θ
0.9116596	1.0969007	0.596	0.4979557	2.0082107	0.738
1.8232856	0.5484604	0.713	0.9959218	1.0040949	0.741
0.4768895	2.0969217	0.721	0.4979456	2.0082516	0.741
0.9454529	1.0576942	0.732	0.9958608	1.0041564	0.743
0.4979354	2.0082925	0.734	0.4986115	2.0055696	0.745

I gathered the new 1995 minima with those previously determined and I considered 0.912 day as the actual period since a number of observers noticed also a light decrease at phase 0.5. I gave a double weight at the two first Hoffmeister's instants and at the visual instants determined by the tracing-paper method.

list 1 : minimum instants of V 1125 Oph

Observers	JD hel (2400000 +)	E	O-C (2)
HOF	38901.49 (x2)	2	- 0.0028
HOF	39262.49 (x2)	398	- 0.0187
HOF	39236.46 (:)	399	+ 0.0396
VBR	48014.426	9998	+ 0.0163
VBR	48467.454	10495	- 0.0489
VBR	48756.498	10812	- 0.0089
VBR	49212.351	11312	+ 0.0249
VBR	49222.398	11323	+ 0.0437
BEN	49479.461 (x2)	11605	+ 0.0196
BEN	49510.428 (x2)	11639	- 0.0097
BEN	49511.387 (x2)	11640	+ 0.0376
VBR	49593.405	11730	+ 0.0065
VRR	49892.379	12058	- 0.0427
VBR	49922.472 (x2)	12091	- 0.0344
VBR	49923.399	12092	- 0.0191
VRR	49924.326	12093	- 0.0037
VRR	49933.461	12103	+ 0.0147
VBR	49934.377	12104	+ 0.0191
CHC	49944.359	12115	- 0.0272
VRR	49954.417	12126	+ 0.0026

The new ephemeris obtained by linear regression with the instants of list 1 is the following :

JD hel 38899.670 + 0.9116563 d x E (2)

± 0.011 ± 0.0000024 (confidence 95%)

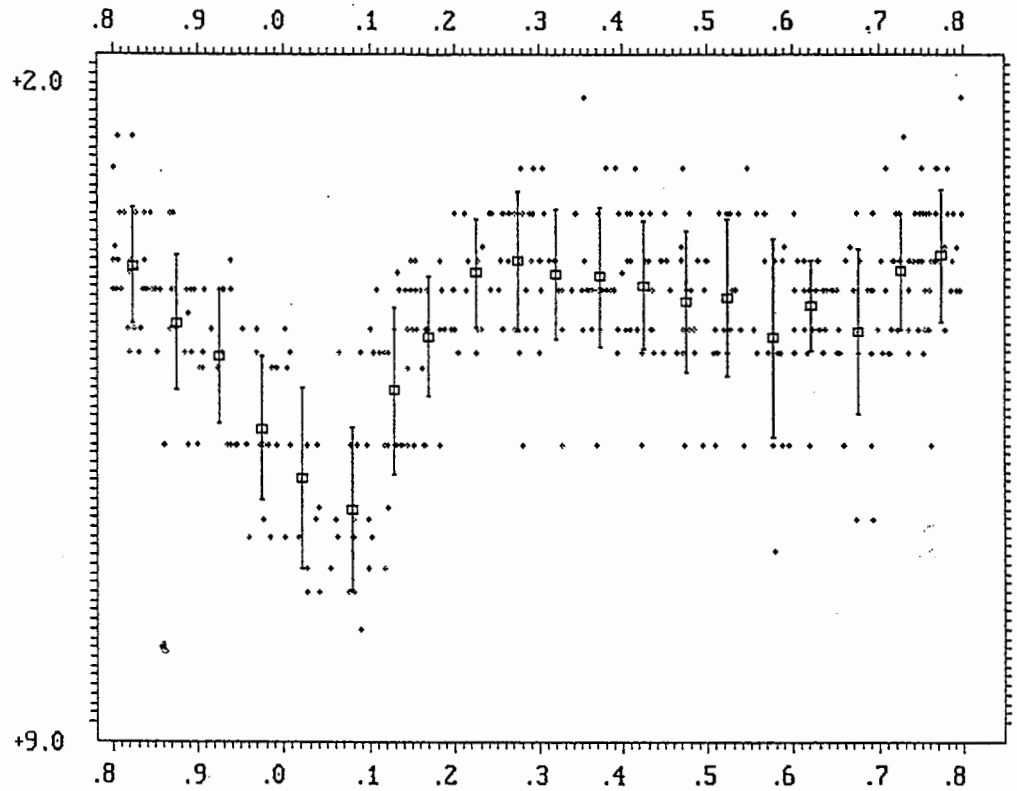
The two photoelectric measurements made with the B and V filters of the Geneva system of the 76-cm telescope photometer of the Jungfraujoch's observatory are situated at phase 0.490 and 0.493. They are of magnitudes 11.22 (V) and 11.21 (V) with B-V colour indices of 0.47 and 0.48.

CONCLUSION

V 1125 Oph is very probably an eclipsing variable which period elements corresponds to the following formula : JD hel 38899.670 + 0.9116563 d x E (2).

Photoelectric measurements all along its light curve should be very useful.

fig 2 : composited light curve of the 420 VBR estimates with ephemeris (2)



BIBLIOGRAPHY

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