

NSV 13565 Cep : a suspected variable

10 OCT. 1997

Introduction

The star NSV 13565 is localized in the field of the variable star T Cep. The coordinates of the star are:

AR: 21 h 06 m 39 s Dec: +68° 24.8' (epoch 1950)

It is a relative bright star with magnitude 8.1 and a spectrum A3. It was found suspected by J. Lagrula in 1937. In the NSV Catalogue this star is enclosed as possibly, constant star. In 1989 others observations don't show changes of brightness, F. Vohla observed the star visually (325 estimations) as a constant star with magnitude 8.00 ± 0.14 .

Observations

I have obtained 47 estimations of NSV 13565 the last campaign. This number of estimations is very small, moreover the obtained curve is very noisy. The comparison stars are the stars from the field for the observation of T Cep. I have used the stars :

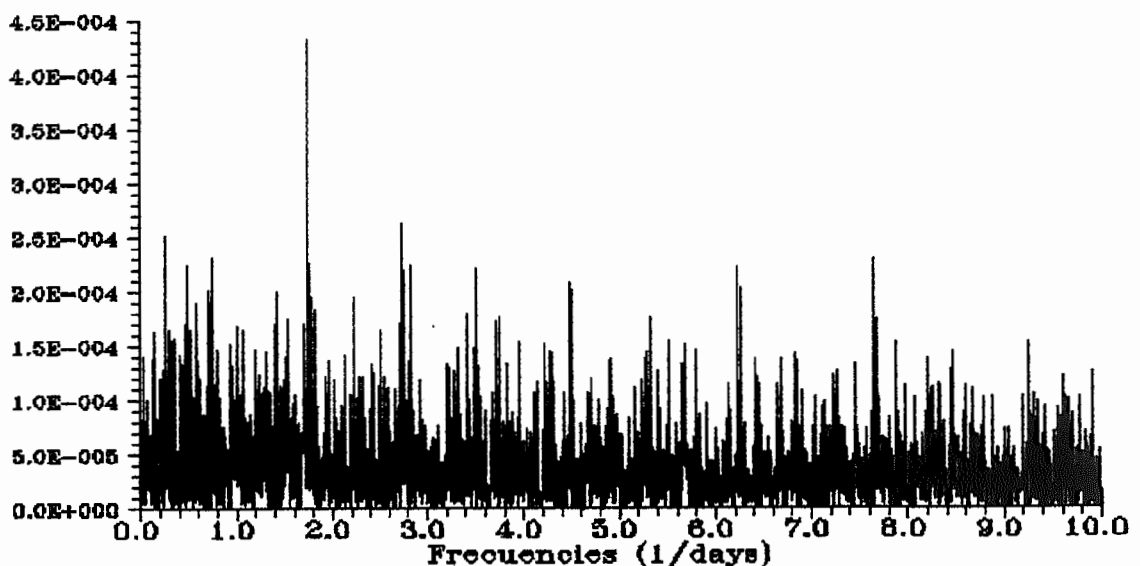
	a	b	c
Magnitude	7.1	7.7	8.2
Personal sequence	7.11	7.67	8.21

The mean time between observations was Δt_j : 3.151 days. This duration doesn't appear among the periods for of NSV 13565.

I have observed this star varied along the range 7.53-7.93 visual magnitude.

Analysis

I applied the algorithm MELSP to data and I obtained the next spectrum:



I try from the initial frequency 0.01 to the final frequency 10 days -1 with a step Δv 0.004995 .

The first ten frequencies were:

Frequency	Period
1.74826	0.5719973002
2.742265	0.3646620586
0.25975	3.84985563
0.73927	1.352685758
7.64236	0.1308496328
2.82185	0.354335382
0.474535	2.107326119
6.23377	0.1604165697
3.49651	0.285999468
3.51495	0.2847789901

By other algorithm based in the PDM method I obtained the next periods:

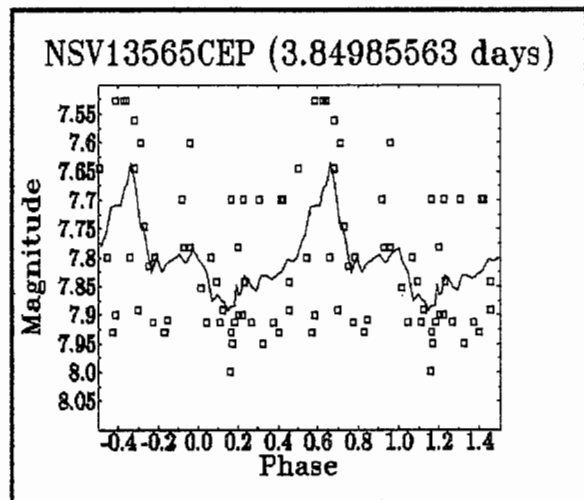
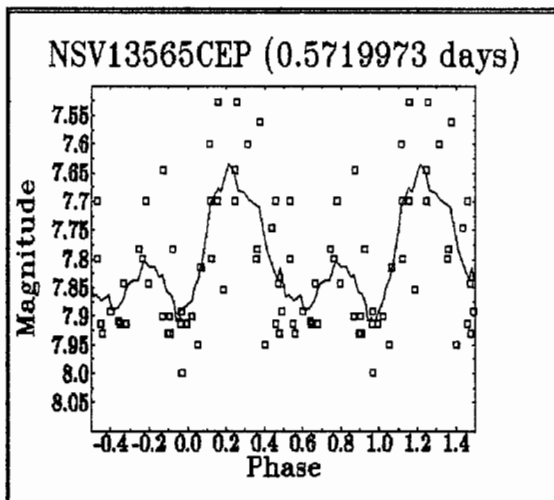
- 4.5776
- 3.886
- 3.5216
- 3.992
- 3.9728
- 2.0336
- 2.4848
- 2.0624
- 4.9712
- 2.12

The short periods don't appear among the probable periods. Only a period near to 3.8 days is common to both algorithms. Other periods are doubtful.

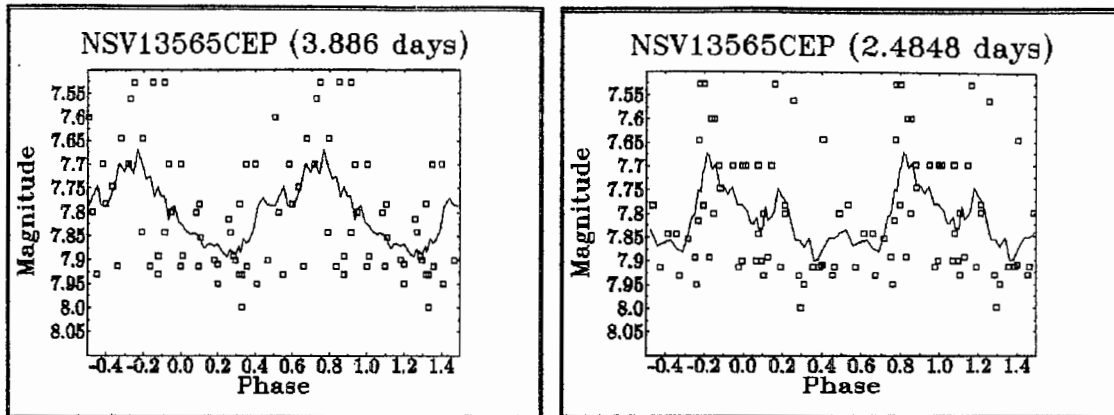
The period 2.4848 days appeared as the most probable when I only had 36 observations of the star.

The results of MELSP seem cleaner than PDM calculations.

So I made all compositions with the previous periods. Only ,some compositions are clear while the majority show irregular curves or very noisy graphs. I have selected four compositions , the cleanest curves. Of every way ,neither of these graphs looks like a light curve of a periodic star.



The clearest curve can be the composition of the period 0.57199 days. This curve shows two maxima on a theoretic period.



Conclusion

Many observers and many observations are necessary to confirm this hypothesis. Photoelectric and visual observations will be useful in this campaign, during the autumn-winter. I enclose a copy of the chart for NSV 13565, the magnitudes are from AFOEV.

This year, we hope to confirm the constancy or not of its brightness.

References

NSV Catalogue (1982)

Private communication (Massimiliano Martignoni)

Note of Author

I acknowledge to Martignoni very much the information I received from him about bibliographic and other references of NSV 13565 Cep.

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