A PROPOS DE NSV 5598

M. MARTIGNONI (MRT) et A. DEDOCH

Last year I saw on "Brno Contr." Nr. 30 the report of observations made by an Astronomer (A.Dedoch) about the suspected variable star NSV 05598.

In tht paper (enclosed a copy) the star was presented as an eclipsing binary with a period of variation of only 0.11 d.

These elements attracted my attentionm so I planned observations of the NSV 05598 using the finding chart with the comparisons published in the same paper.

In 1993 I made estimations only in two nights: 21st May and 4th June. On the basis of them I can say that the star is a variable, with the period calculated by Dedoch, as my O-C are in agreement with the ephemeris. The instrument was a Newton telescope of 216mm.

H.J.D.	E	O-C
2.449.129,370	9773	-0.007
129,424	9773.5	-0.010
129,488	9774	-0.004
143,424	9895.5	-0.004
143,484	9896	-0.001

Because of personal impediments I made only a few observations last season: these confirm the variation again but I am not quite sure about the period, as the minima observed show changed O-C.

H.J.D.	E	O-C
2.449.395,553	12093,5	+0.016
415,443	12267	+0.006

I'll plan new observations in next winter/spring.

ON THE VARIABILITY OF THE STAR NSV 5598

Antonín Dědoch

Štefánikova hvězdárna, Petřín 205, 118 46 Praha 1
Štefánik Observatory, Petřín 205, 118 46 Praha 1, Czechoslovakia

Received on June, 17, 1991

Abstract. The type and light elements for this eclipsing binary has been determined. It proved to be a W UMa-star with extremely short period.

The variability of the star *NSV 5598 Com* was discovered by Archer (1959). On the basis of his observation this star was included in the *NSV*-catalogue [Kholopov et al. (1982)]. The type Algol is given as possible but uncertain (EA:), range of the light change 9.7 to 10.6 mag pg.

I observed the star visually in the Štefánik Observatory in Prague and in the observing site in Sušice from April 1990 through June 1991. During the time interval in question I obtained 27 times of minimum brightness. 26 of them were derived by the common tracing-paper method from estimates covering both branches of the light curve, while in the remaining case (N° 17) only the descending branch was observed. The following light elements were determined from all the acquired times of minima by means of the method of least squares:

$$JD(min) = 2\ 448\ 008.421 \pm 4 + 0.1146993 \pm 13\ E$$

The times of all minima and *(O-C)* residuals have been listed in the Table. Figure 1 depicts the mean light curve constructed from 170 visual estimates made in the observatory in Prague. The chart of the close environment with the used comparison stars is in Fig. 2. The estimates made in the observing site at Sušice have not been included in the mean light curve as other comparison stars, and also another telescope were used.

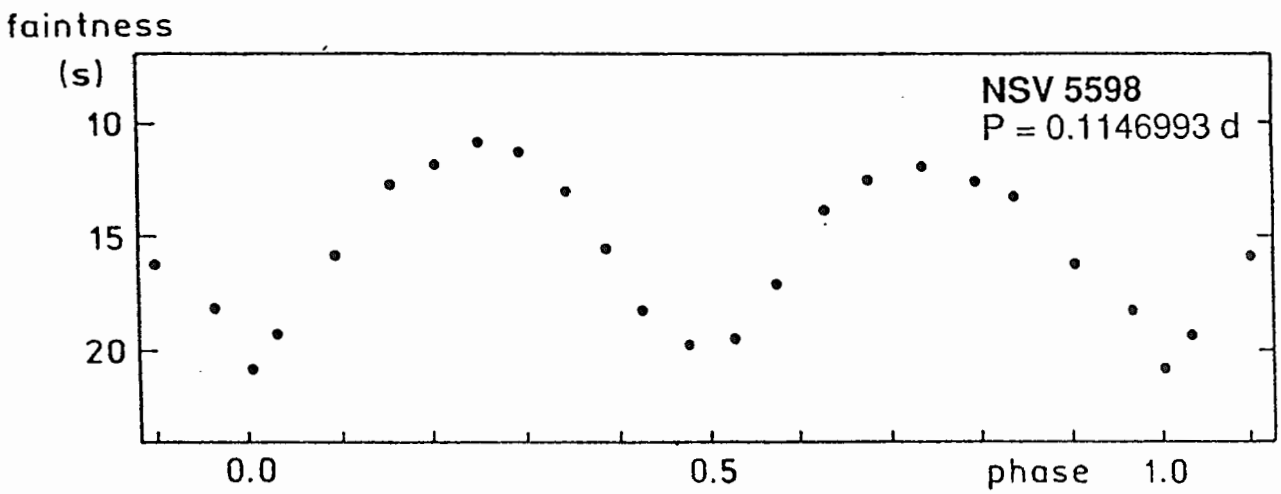


Fig. 1. NSV 5598. *The mean light curve. s is brightness expressed in estimation degrees [editor's note: Hollan (1991) has proposed a new term for this quantity - "faintness"].*

It is clear from the light curve that the star does not belong to the Algol-type but to the W UMa-type. The light changes are small, the difference between the amplitudes of the secondary minimum and primary one is within the observational errors.

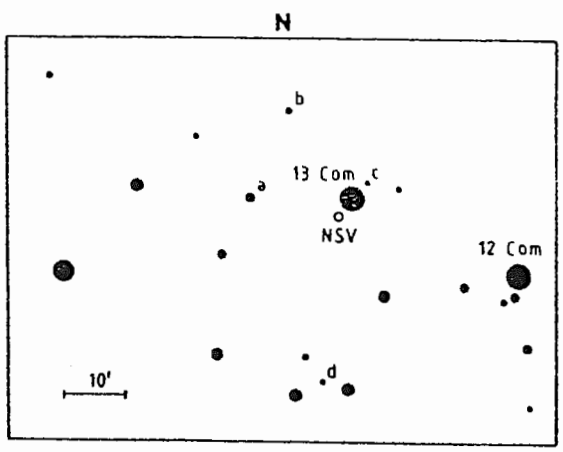


Fig. 2. NSV 5598. *The close environments of the star.*

Thanks to its extremely short period, this object can be also interesting from the astrophysical point of view. Another type of variability is not excluded, but the period 0.057 days seems to be too short for a RR Lyrae C-star and the star is too faint for a δ Scuti variable provided that it is a member of the Coma Cluster, i.e. that it lies in the distance of 75 pc. To determine more precisely both the light curve and the light elements, it would be desirable to investigate this variable star by more precise methods.

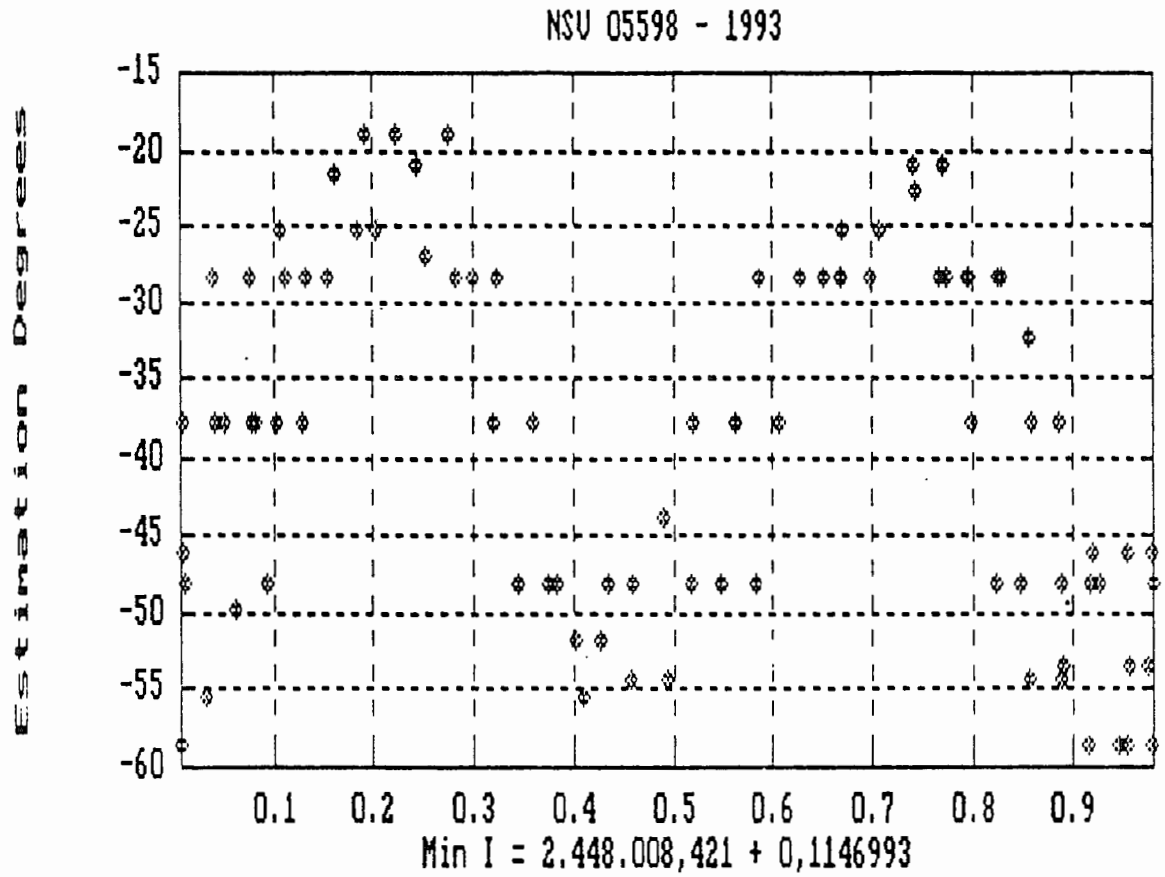
NSV 5598.

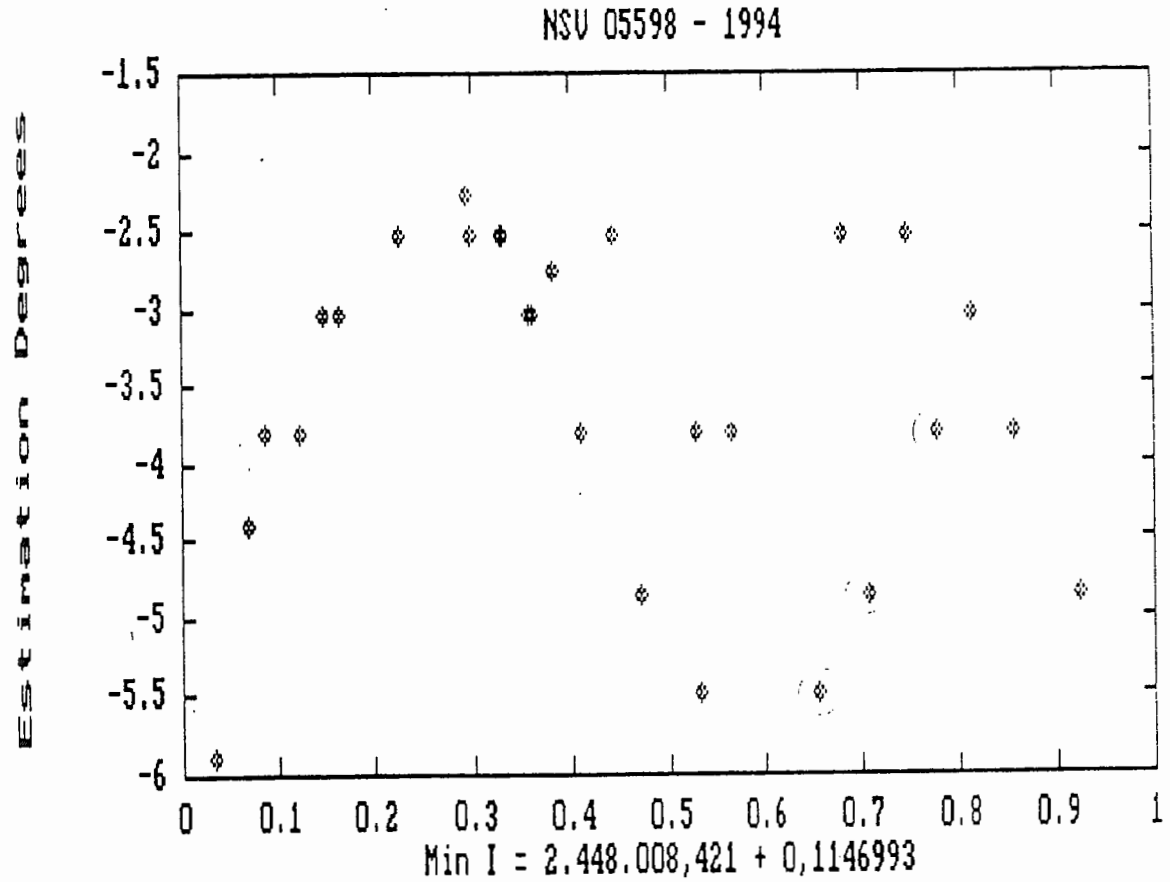
Observed times of minimum brightness of the star

No	*JD(min)*	*E*	*(O-C)*	No	*JD(min)*	*E*	*(O-C)*
1	2 448 008.420	0	-0.001	15	2 448 332.496	2825.5	-0.008
2	2 448 008.482	0.5	+0.004	16	2 448 357.462	3043	+0.011
3	2 448 010.368	17	-0.003	17	2 448 357.514	3043.5	+0.006
4	2 448 271.537	2294	-0.004	18	2 448 357.567	3044	+0.001
5	2 448 271.596	2294.5	-0.003	19	2 448 358.425	3051.5	-0.001
6	2 448 271.650	2295	-0.006	20	2 448 384.401	3278	-0.004
7	2 448 271.706	2295.5	-0.007	21	2 448 384.464	3278.5	+0.001
8	2 448 272.690	2304	+0.002	22	2 448 392.421	3348	-0.013
9	2 448 275.554	2329	-0.002	23	2 448 403.450	3444	+0.005
10	2 448 275.618	2329.5	+0.005	24	2 448 408.371	3487	-0.006
11	2 448 275.675	2330	+0.005	25	2 448 408.428	3487.5	-0.007
12	2 448 310.544	2634	+0.005	26	2 448 409.425	3496	+0.015
13	2 448 310.605	2634.5	+0.009	27	2 448 413.366	3530.5	-0.001
14	2 448 332.435	2825	-0.012				

Literatura
References

Archer S.: 1959, Journal Brit. Astr. Assoc. 69, No. 4, 157
Cholopov P. et al.: 1982, New Catalogue of Suspected Variable Stars, Nauka, Moscow (= *NSV*)
Hollan J.: 1991, Jak je to jasné? O vizuální fotometrii. / How much is it bright? On visual photometry. Hvězdárna a planetárium Brno. In Czech.


NSV 05598 - 1993
Estimation Degrees
-15
-20
-25
-30
-35
-40
-45
-50
-55
-60
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
Min I = 2.448.008,421 + 0,1146993


NSV 05598 - 1994
Estimation Degrees
-1.5
-2
-2.5
-3
-3.5
-4
-4.5
-5
-5.5
-6
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Min I = 2.448.008,421 + 0,1146993