VISUAL MINIMA AND LIGHT CURVE OF XZ CMI

Summary: about 300 visual estimates carried out on XZ CMi confirm the GCVS 85 light elements. The visual light curve is presented in this paper, too.

Introduction

XZ CMi is an eclipsing binary of EA type with a visual light variation in the range 9.7-10.4 mag. The GCVS 85[1] catalogue gives the following light elements:

$$\text{Min. I (HJD)} = 42444.4017 + 0.5788095 * E \qquad (1)$$

Furthermore the D value is 0.22 and the spectrum is F0.

Results and discussion

Even if XZ CMi is a well-known star, I decided to follow some minima from 1995 and to continue such work in 1996 to confirm light elements. The observations were carried out using the GEOS finding chart C267 and processed in order to obtain times of minimum. The SOP program[2] has been useful for this purpose. In the next tab. 1 the number of estimates and of visual minima per year are shown:

Tab.1 : visual observations of XZ CMi

	1995	1996	Total
Nr of estimates	119	170	289
Nr of minima	5	4	9

The tab. 2 shows the heliocentric times of minimum so calculated, the O-C according to light elements (1) and the type of observed minimum:

Tab.2 : times of minimum of XZ CMi in 1995-1996

HJD	O-C(1)	TYPE
49755.350 ± 0.014	0.006	I
49799.376 ± 0.029	0.042	I
49801.351 ± 0.031	-0.009	II
49810.334 ± 0.018	0.003	I
49812.334 ± 0.008	-0.023	II
50122.314 ± 0.007	0.004	I
50126.368 ± 0.006	0.007	I
50137.358 ± 0.026	-0.001	I
50148.358 ± 0.008	0.002	I

The average value of O-C is:

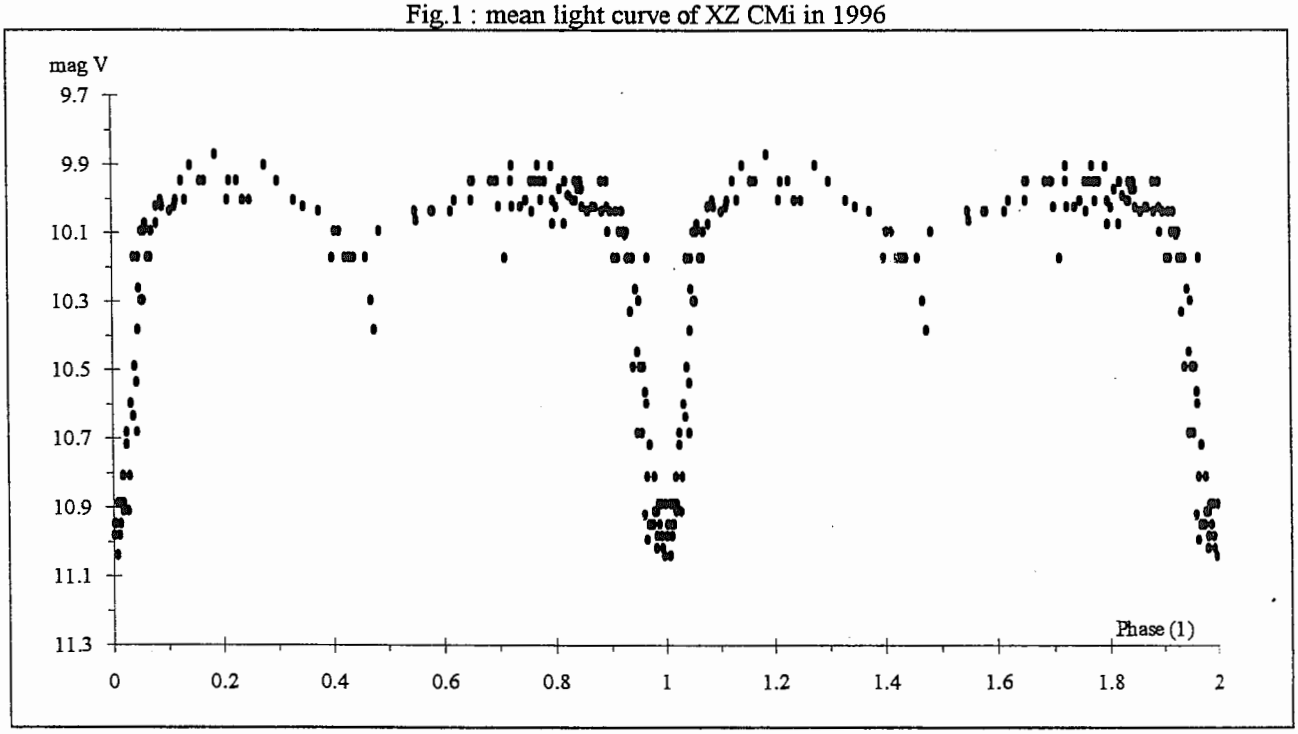
$$\text{O-C}_{mean} = 0.003 \pm 0.016 \text{ d}$$

so that we can confirm the GCVS 85 elements. Furthermore the two secondary minima show negative values of O-C.

The light curve

Only the set of observations in 1996 covers the whole period, so that these data has been used to generate a mean light curve.

Fig.1 : mean light curve of XZ CMi in 1996



The secondary minimum is not so-well defined, due to few estimates carried out around this phase. However the duration of the main eclipse is really about 0.22.

Conclusions

Visual observations of 1995 and 1996 confirm the GCVS 85 light elements for XZ CMi. The work is able to show the whole light curve and to confirm the D value.

Davide DALMAZIO (DDL)

References:

(1) KHOLOPOV et al., *General Catalogue of Variable Stars*, IV edition (1985)
(2) A.GASPANI, *Stochastic Optimization Program*, ver.5 (priv.comm.)