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PERIOD CHANGE OF THE ECLIPSING BINARY IM AURIGAE

Photoelectric observations and improved elements of this binary were reported by Gdr et al. (1982). These elements were as follows:

$$\text{Hel Min JD} = 2438327.7922 + 1^{\text{d}}.2472906 \cdot E \quad (1)$$

$\begin{matrix} +11 & & +3 \end{matrix}$

We obtained two new photoelectric minima with the 48 cm Cassegrain telescope of the Ege University Observatory. These new minima are given in Table I together with all collected photoelectric ones published up to date. The O-C values in this table were computed with equation (1).

Table I
 Times of minima of IM Aurigae

JD Hel	Min	O-C	E	Reference
2438327.7867	I	-0.0055	0	Kondo, 1966
345.873	II	-0.0050	14.5	"
380.803	II	0.0010	42.5	"
385.788	II	-0.0030	46.5	"
700.7403	I	0.0083	299	"
769.3316	I	-0.0014	354	Margoni et al. 1966
40515.5465	I	0.0067	1754	Dworak, 1974
42749.4434	I	0.0062	3545	Dworak, 1976
44517.4706	II	-0.0009	4962.5	Gdr et al. 1982
567.3674	II	0.0043	5002.5	"
569.236	I	0.0020	5004	"
893.5270	I	-0.0027	5264	"
931.5674	II	-0.0046	5294.5	"
45018.2548	I	-0.0042	5364	This paper
261.4702	I	-0.0104	5559	"

The O-C values in Table I are plotted in Figure 1. As it can be seen from the figure, the O-C values of recent minima show a rapid decrease. This is probably due to the abrupt change in the period after 1980. Therefore, we recalculated the light elements of the system by the method of weighted least squares using only four primary minima obtained by us. These new light elements are as follows:

$$\text{Hel Min I JD} = 2444893.5267 + 1^{\text{d}}.2472681 \cdot E \quad (2)$$

$\begin{matrix} +2 & & +12 \end{matrix}$

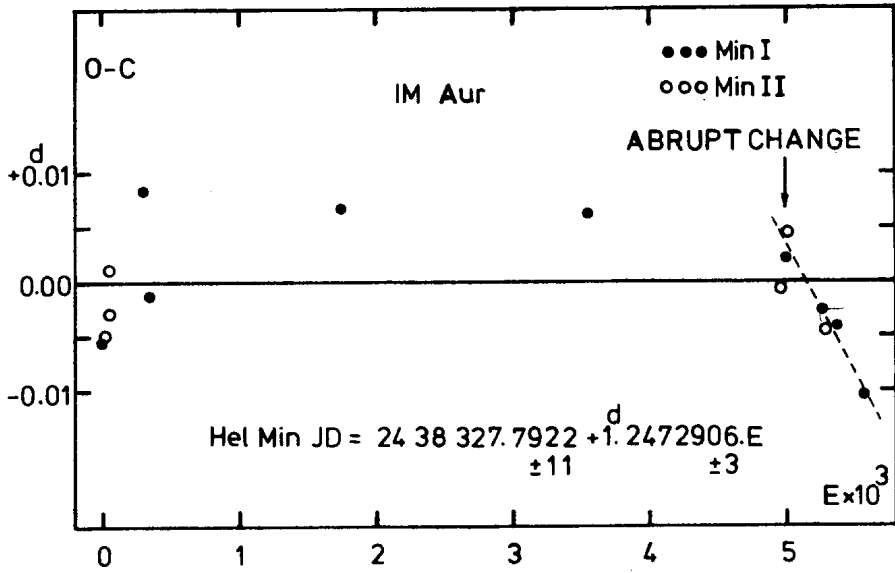


Figure 1

The O-C values computed with the elements given by equation (1)

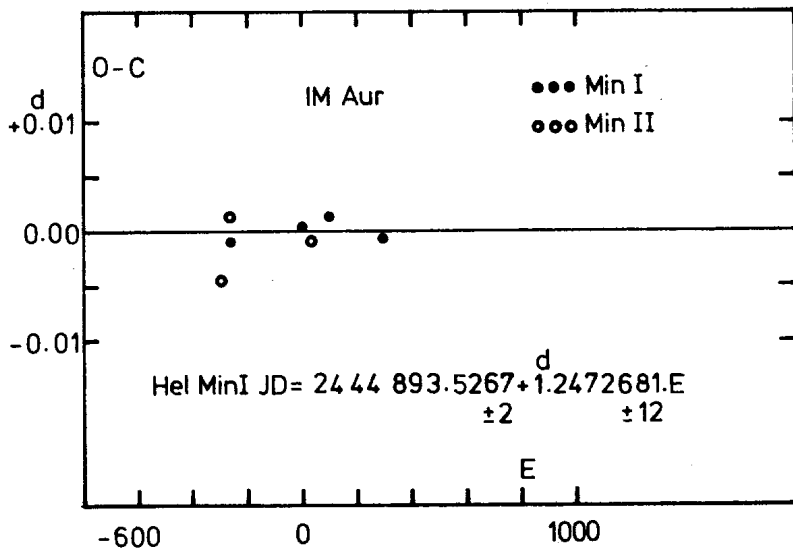


Figure 2

The O-C diagram obtained from equation (2)

The O-C values computed with the equation (2) are shown in Figure 2. These new light elements can be used with sufficient accuracy in prediction of the times of minima for the near future.

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