

EK COMAE BERENICES: A W UMA STAR WITH SHORT PERIOD

Jiří Borovička
Stefánik Observatory
Petrín 205
Prague 1, Czechoslovakia

*Presented at the First European Meeting of the AAVSO
Brussels, July 24-28, 1990*

Abstract

Visual observations during 1989 and 1990 were used to derive light elements for EK Comae Berenices.

The variable star EK Com was discovered by Kinman *et al.* (1966) at the Lick Observatory. The star, No. 33 in their paper, was recognized to be a W UMa type eclipsing binary ranging between photographic magnitudes 12.7 and 13.4 but no period was determined. Little attention has been devoted to EK Com since its discovery. Only one time of minimum was observed visually by Locher (1986).

I started the visual observation of EK Com in 1989 together with J. Mánek and A. Dedoch. Very soon we were able to confirm the type of variability. The two minima are almost equal in depth. We also noticed that the times of minima repeat every two days, but we could not decide whether 13 or 15 individual minima occur within 48 hours. In 1990 we concluded that the shorter period is true, the light elements derived from our observations being:

$$\begin{aligned} \text{Min I}(\text{JD}_{\text{hel.}}) = & 2447609.406 + 0.2666867 E & (1) \\ & \pm 0.008 \quad \pm 0.0000019 \end{aligned}$$

In order to further improve the period, the original photographic observations of Kinman *et al.* (1966) were used. Under the assumption that the period has been constant during the last 30 years, the most probable light elements are:

$$\begin{aligned} \text{Min I}(\text{JD}_{\text{hel.}}) = & 2447609.405 + 0.2666874 E & (2) \\ & \pm 0.007 \quad \pm 0.0000001 \end{aligned}$$

The mean visual light curve is presented in Figure 1. Figure 2 demonstrates that the Kinman *et al.* photographic observations are in agreement with our elements in equation (2) as well. The one time of Locher gives an O-C residual which is also consistent. The period of EK Com is one of the shortest among W UMa stars. This makes EK Com an interesting object for further study.

A more detailed paper including the times of observed minima will be published later.

References

- Kinman, T. D., Wirtanen, C. A., Janes, K. A. 1966, *Astrophys. J. Suppl.*, No. 119.
Locher, K. 1986, *BBSAG Bull.*, No. 79.

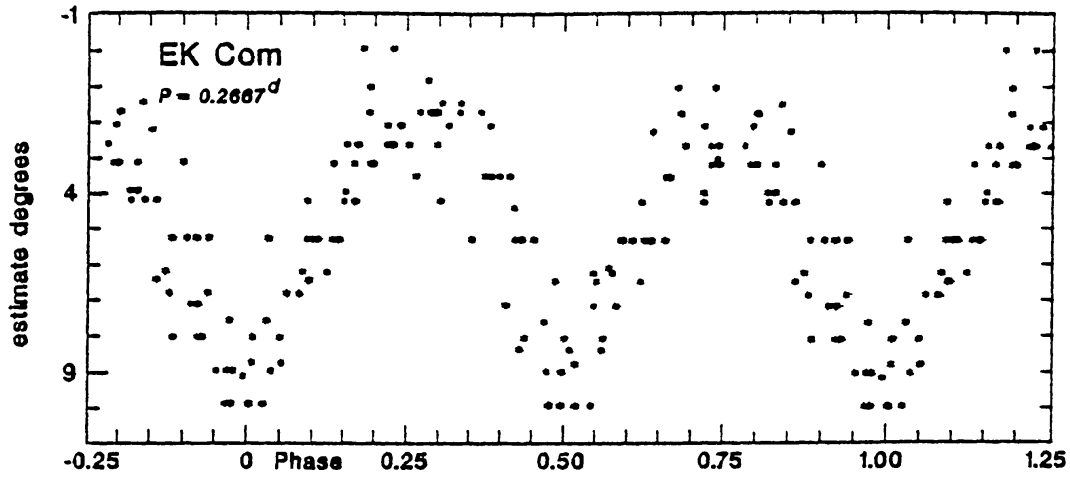


Figure 1. The mean light curve of EK Com constructed from author's visual estimates.

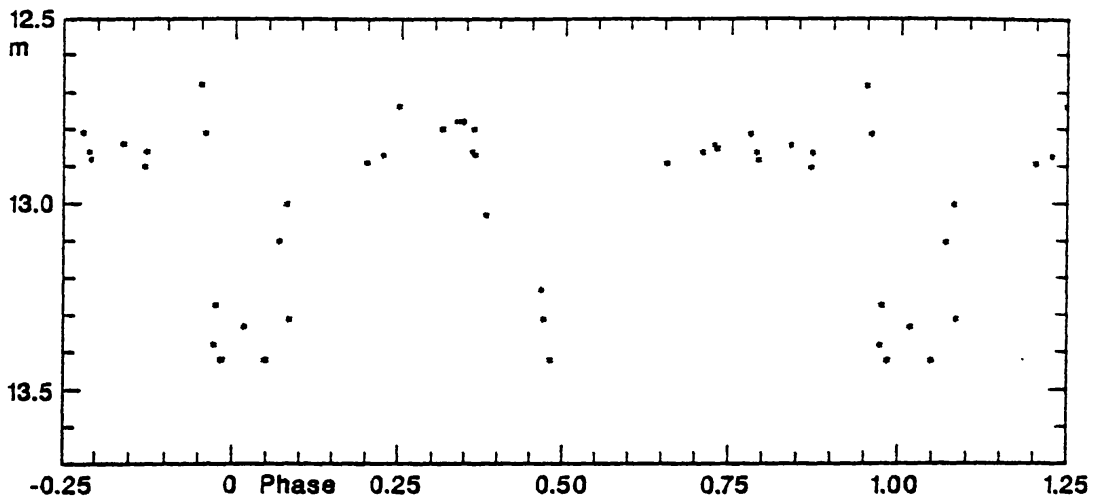


Figure 2. The mean light curve of EK Com constructed from Kinman's photographic observations.