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TIMING OF THE 1997 ECLIPSE OF THE LONG PERIOD (5.61 YEARS) ECLIPSING BINARY EE CEPHEI

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Abstract

The eclipsing binary EE Cephei has a very long period of 5.61 years and an eclipse lasting about 30 days. The 1997 eclipse was observed visually and by CCDs with a spread of only 3.6 hours, but it was about three days later than predicted.

1. Introduction

To be certain the long period eclipsing binary 2205+55 EE Cephei would not be forgotten, a revised chart (Figure 1) was prepared and distributed to a number of potential observers. Table 1 lists the observers who contributed data, some of them despite attending the annual AAVSO meeting during the time of the minimum.

Table 1. Observers of 1997 eclipse of EE Cep.

Observer	*Location*	*Method*	*No. observations*
Barry Beaman	Peoria, IL	Visually	14
Ray Berg	Roseville, AR	Visually	21
Stephen Cook	Russellville, AR	CCD, V filter	14
Gilbert Lubcke	Littleton, WI	CCD, V filter	31
Anton Paschke	Switzerland	CCD	18 (on 10 dates)
Gerry Samolyk	Greenfield, WI	Visually	21 obs.

2. Results

The data provided by Berg, Cooke, and Samolyk are plotted in Figure 2. Data by Beaman, Berg, Lubcke, and Paschke were not included for there were insufficient observations on the rising portion of their curves to determine time of minimum.

Gerry Samolyk kindly analyzed the data supplied by the above observers using his computerized tracing paper method. Using data from the three observers with sufficient data on both legs of the light curves (Figure 2), he obtained the heliocentric times of minima for each (Table 2). These times of minimum cover 0.15 day or 3.6 hours, compared to a spread of 12 hours for the 1992 eclipse.

The mean date of minimum, JD 2450743.92, is later than the predicted time of JD

Table 2. Times of minimum of EE Cep.

Observer	*No. Observations*	*JD min (hel.)*
Samolyk	21	JD 2450743.85
Cook	14	JD 2450743.92
Berg	21	JD 2450744.00

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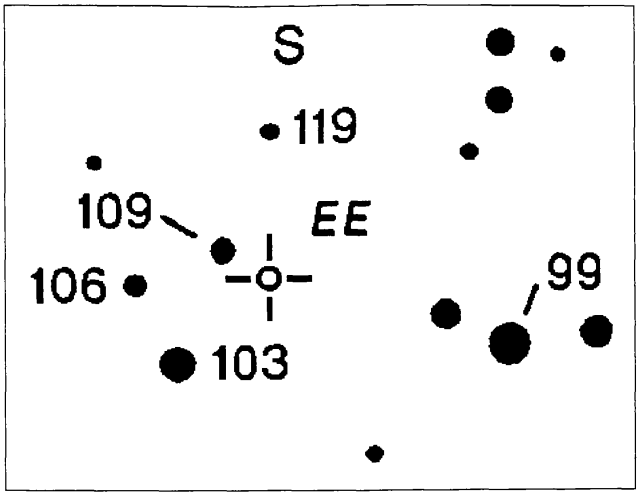

Figure 1. Magnitudes of comparison stars for EE Cep.

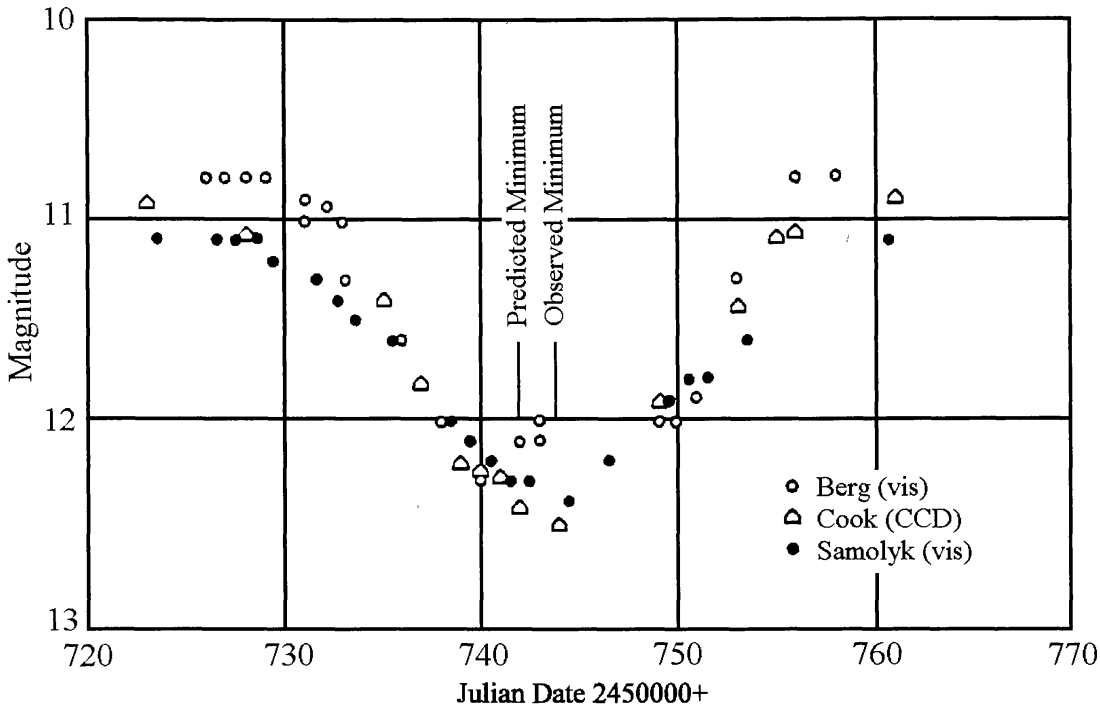

Figure 2. Time of minimum for EE Cep determined by three sets of observations.

2450741.49 by 2.43 days. Thus, the next eclipse should be expected on JD2452795.76, which is June 5, 2003 UT, with the window of May 21 to June 20, 2003. EE Cep will be observable in the early morning in the northeastern sky.

Old age (I will be 94 in 2003) may prevent me from organizing the upcoming eclipse observations, so I am asking the AAVSO to provide a timely announcement, followed by reduction of the data.

Reference

Halbach, E. A. 1992, *J. Amer. Assoc. Var. Star Obs.*, **21**, 129.

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