THE 2004 ECLIPSE OF ETA GEMINORUM

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The accompanying light curve shows my observations of **Eta Gem** between August 2004 and April 2005. Observations were made using the naked eye, 10x50B and 11x80B as necessitated by the observing conditions. The comparison stars used were Mu Gem, 1 Gem and Epsilon Gem. Since Eta Gem is a red variable, you may find that your own observations are systematically brighter or fainter, but hopefully you will have seen a similar pattern of variation.

The 2004 eclipse was generally described as being unobservable due to its proximity to conjunction. However, since the predictions give the date of mid-eclipse as being around 2004 Aug 1, there would be the opportunity to observe much of the second half of the eclipse as Eta Gem moved out from the morning twilight though, with it being low in the sky, observing conditions would be far from ideal.

There was some uncertainty in advance as to the duration of the eclipse. Although the duration of totality is usually given as about 30 days, different sources gave different values for the duration of the partial phase, ranging from a few days to several weeks. Based on this light curve it isn't possible to comment on the duration of totality, but it does seem to support the longer duration for the partial phase.

Eta Gem is also a semi-regular variable with a period of about 233 days and a range of a few tenths of a magnitude; indeed some observers mistakenly reported two preceding semi-regular minima as being early starts to the eclipse. Away from the eclipse the light curve shows a semi-regular minimum in late 2004 followed by a semi-regular

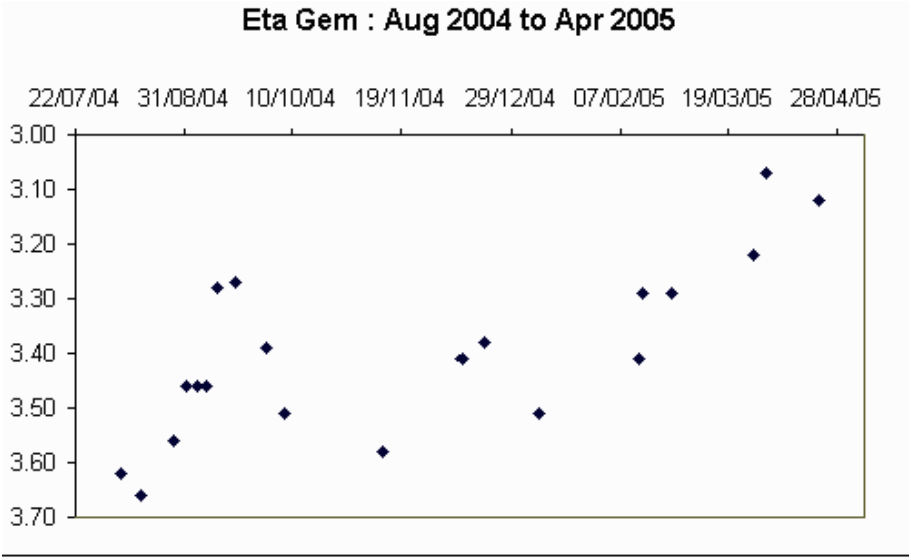

Figure 1; The authors observations of the Eta Gem eclipse

maximum in the spring of 2005. Given that the previous semi-regular minimum took place in Feb-Mar 2004, it is likely that Eta Gem was around semi-regular maximum when the eclipse started, and the semi-regular component was fading as it emerged from eclipse. This would explain why observers typically only reported it rising by 0.2-0.3 mag as it emerged from eclipse, compared with 0.5 mag reported in several previous eclipses.

The next eclipse is predicted for early October 2012. Although Eta Gem will be primarily a morning sky object, 2012 will give us the opportunity to observe an eclipse at a more convenient altitude and also to see the whole of the eclipse.