

**2009 Epsilon Aurigae
Eclipse Campaign Newsletter #2
25 November 2007**

Dear Colleagues,

The eclipse is getting closer.

I am continuing to get single channel UBV data at the Hopkins Phoenix Observatory. I am planning to work out a way CCD photometry can be done too. I will post the results once I have finished some experimenting.

The epsilon Aurigae star system continues to vary out-of-eclipse. It is beginning to look more like the periods of variations may be random or at least very complex.

Recent observations at HPO show the V band data has faded to 3.10. Lothar Schane has continued taking spectra of the star system. Lothar has published a paper of his results. Please see the Campaign web site for details.

We have several new Campaign members. I invite you to check out web site for the members information.

From Bob Stencel:<

11/25/07 PRE-ECLIPSE OBSERVING

-- summary for late 2007 by Dr. Bob Stencel, University of Denver.

As 2008 begins, we are fewer than 20 months prior to eclipse, which is only 6% of the orbital phase until first contact. Considering that the disk diameter spans a similar percentage of the orbital phase, we are getting within the window where material associated with the dark disk may begin to reveal itself in photometry and/or spectroscopy.

During the balance of the current observing season, continued filter photometry and H-alpha spectroscopy are needed to characterize out of eclipse behavior. Comparing results among observers helps confirm phenomena.

The point of these pre-eclipse observations is to provide a baseline for in-eclipse observations in order to:

[1] determine whether the ~0.1 mag quasi-periodic (rapid or slow), out of eclipse light variation is due to the F supergiant star, or related to excitation of disk material (in parallel with UV and infrared spectra);

[2] have that variation determined well enough to constrain whether the mid-eclipse brightening seen previously is merely F supergiant variation or could be due to a central clearing in an inclined disk;

does bifurcate into a pseudo-binary during eclipse due to the dark disk;

[4] a “disk trailing wake” appears to influence the light curve and spectra only after mid-eclipse, but pre-eclipse observations will determine whether material is symmetrically distributed about the disk along the orbit.

Photometry by Jeff Hopkins provides the most continuous UBV data thus far – see links below to summaries. Lothar Schanne similarly has been monitoring the H-alpha profile. Dr. Bob Stencel has obtained infrared spectra and photometry using MIMIR, Mirsi and Spitzer IRS instruments, and recently obtained baseline observations with the Palomar Testbed Interferometer.

Summer of 2008 offers a chance to practice your low altitude observing skills, especially for observers north of epsilon Aurigae’s latitude equivalent, 44 degrees, where it becomes circumpolar [Canada, northern Europe, Russia, etc.]. Be sure to report your efforts to Jeff Hopkins as part of the Campaign, and archive your data!

Some key papers:

Carroll, S. et al. 1991 *Astrophysical Journal*, vol. 367, p. 278 - interpreting eps Aur.

Hopkins, J. and Stencel, R. 2007 <http://arxiv.org/abs/0706.0891><

Huang, S.S. 1965 *Astrophysical Journal* vol. 141, p. 976 - model for eps Aur.

Schanne, L. 2007 IBVS 5747 <http://www.konkoly.hu/cgi-bin/IBVS?5747>

And finally, anyone wishing to contribute to the Newsletter, is most welcome. Please send contributions to me at phxjeff@hposoft.com.

In addition to sending this directly to those who have expressed an interest in epsilon Aurigae, I will post this on the campaign's web site.

<http://www.hposoft.com/Campaign09.html>

Jeff