

Summary of data reduction for AI Tri

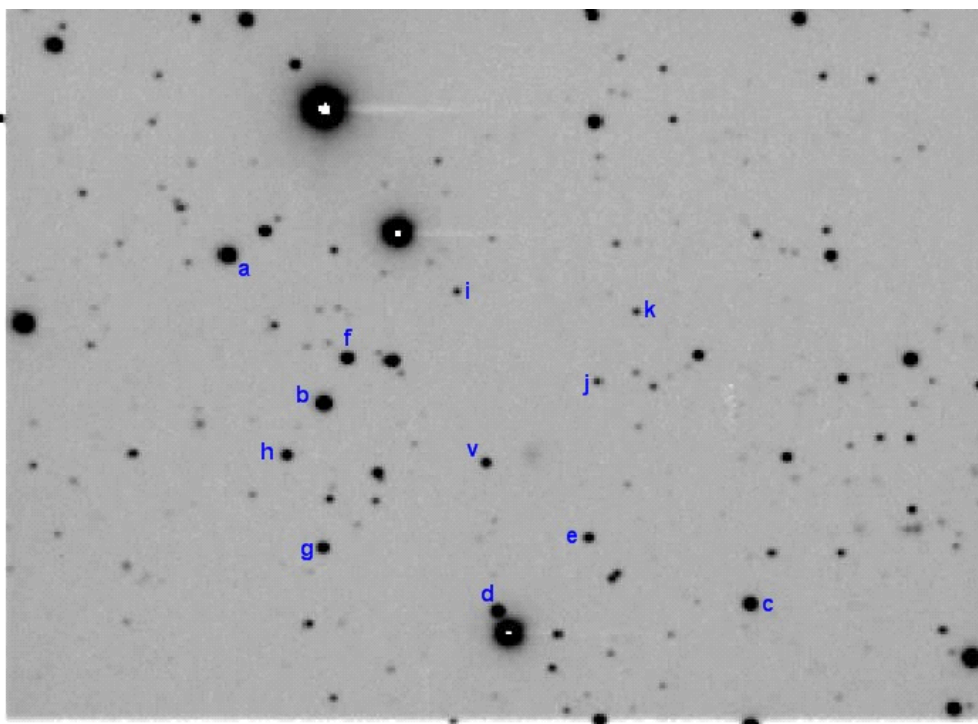
The images are unfiltered 30 second exposures, made using a Meade 30 cm SCT and Starlight Xpress MX916 CCD camera.

Two sets of photometric reduction were carried out for each dataset

- Optimal extraction using **v** as the target star and **b** as the PSF star
- Aperture photometry, with aperture radius 3.0 pixels.

Two files containing the extracted fluxes are given for each dataset.

Here is the field (made from a set of stacked images) with the stars marked:



The following stars were measured: **a, b, c, d, e, f, g, h, k, v**. Data for **c** and **d** are not continuous (the stars were sometimes too near the edge of the field to allow sky subtraction), and are of only limited use.

Data for the variable are normalised to the ensemble **(0.2 b + f + g + h + k)**. This is a deliberate attempt to (1) use several comparisons stars distributed around the

variable and (2) still have enough flux that the effective comparison star makes a negligible contribution to the overall error budget.

It sometimes happens that optimal extraction shows small drifts (e.g. few %) in delta mag (or flux ratio) throughout the run, which are not present (or much reduced) in aperture photometry using a large aperture (however, the large aperture gives a much greater random error). A possible cause of these drifts is variation in PSF across the image. The use of an ensemble of comparison stars distributed around the variable should help to mitigate these effects, and also other problems – e.g. due to comparison stars which have unusual colours or are slightly variable. I tried different combinations of comparison stars, and it seems these data may contain slow drifts, at the 1 to 2% level. I don't think this of serious consequence given that the AI Tri itself shows much greater, and more, rapid variations.

Phase was computed from **2449243.9401 + 0.1917448 E** (Schwarz et al, Astron. Astrophys. 338, 465–478 (1998)).

Finally, an Excel spreadsheet is presented for each night which contains the normalised fluxes (from optimal extraction) for both AI Tri (the variable) and **e** (as a check star).