

1. Select ST Aur V images. Open this faint image (i.e., 141029, 12:09:19). Load AAVSO comps and VSX targets. Clear any unidentified stars. Delete any saturated comps (2?). Use 132 as check. Change centroid settings under tools to 2-2. Change aperture settings to 2-6-6. Save sequence.

Loaded , Star 106 was saturated, stars with no AUID deleted, and cleared any unidentified stars.

2. Re-open image. Confirm aperture radius of 2 pixels includes only the target and exclude most of the companion. Zoom in to confirm.

Done, kept ST Aur check star 132 and comp 125.

3. Run a time series of all V images BUT in the first case use a fixed aperture of 2 pixels. Record/report the Max and Min magnitudes.

Star Min Max

ST Aur 11.747 14.655

star 132 13.122 13.249

star 125 - -



4. BTW, can you run a time series with all the images/filters together?

Yes, All filters have been plate solved and calibrated, some have not been reported to the AAVSO yet.

5. Run a time series of all V images BUT use a fixed aperture of 10 pixels. Record/report the Max and Min.

Star Min Max

ST Aur 11.511 13.437

star 132 13.021 13.267

star 125 - -

6. Explain what difference you find? If you used too large an aperture for your analyses, would you miss the true V minimum of ST Aur?

Yes if it was larger, it could be contaminated with more light from surrounding stars, and let in more noise.

7. Repeat this time series process with the same saved sequence (do not create a new one) but use I filter images in this case.

Done

8. Record/report both of the Max and Min again.

<i>Stars</i>	<i>Average</i>	<i>Min</i>	<i>Max</i>	<i>Filter</i>
<i>ST Aur</i>	<i>9.292</i>	<i>8.485</i>	<i>10.178</i>	<i>I</i>
<i>Star 132</i>	<i>12.428</i>	<i>12.361</i>	<i>12.493</i>	<i>I</i>
<i>Star 125</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>I</i>

9. Why is the result quite different? If you used too large an aperture for your analyses, would you miss the true I magnitude of ST Aur?

The star is brighter in the I filter. No, I tried going higher and the numbers were the same.

Does it tell you something about the characteristics of ST Aur and the companion? Why is this target so bright in the I filter?

The I filter at 806 nm and FWHM 149nm - near infrared. The star is

This is a long period variable. As per VSX The infrared amplitudes are usually less than in the visible and may be <2.5.