APERTURE PHOTOMETRY

OF A VARIABLE STAR

USING THE

AstroImageJ

SOFTWARE

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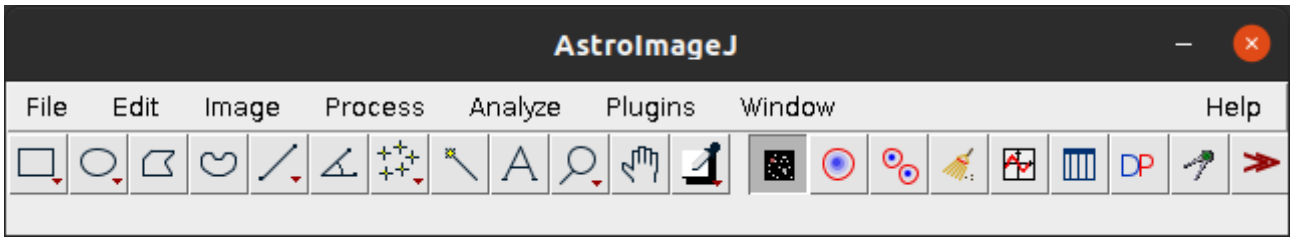
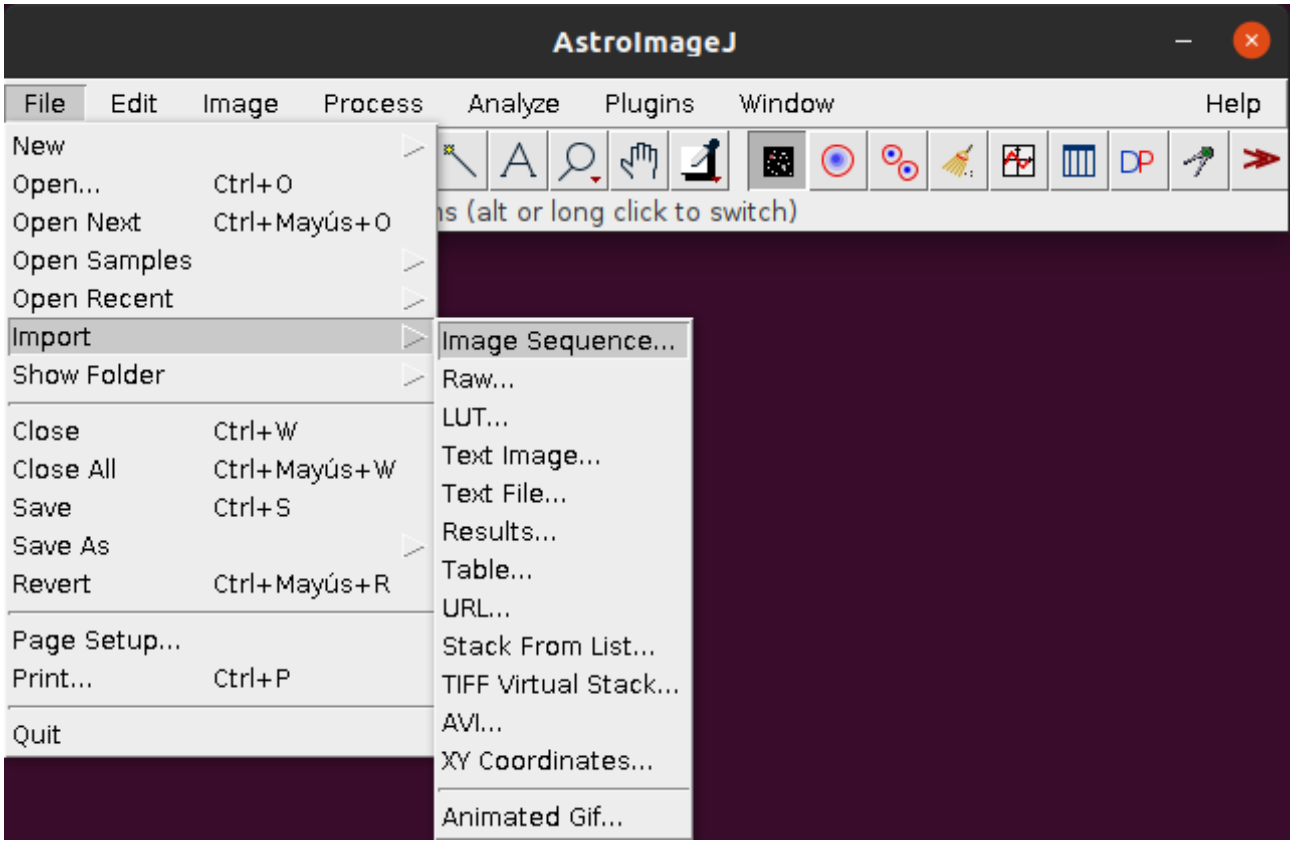
CEFCA, 2025

(1) Launch AstroImageJ

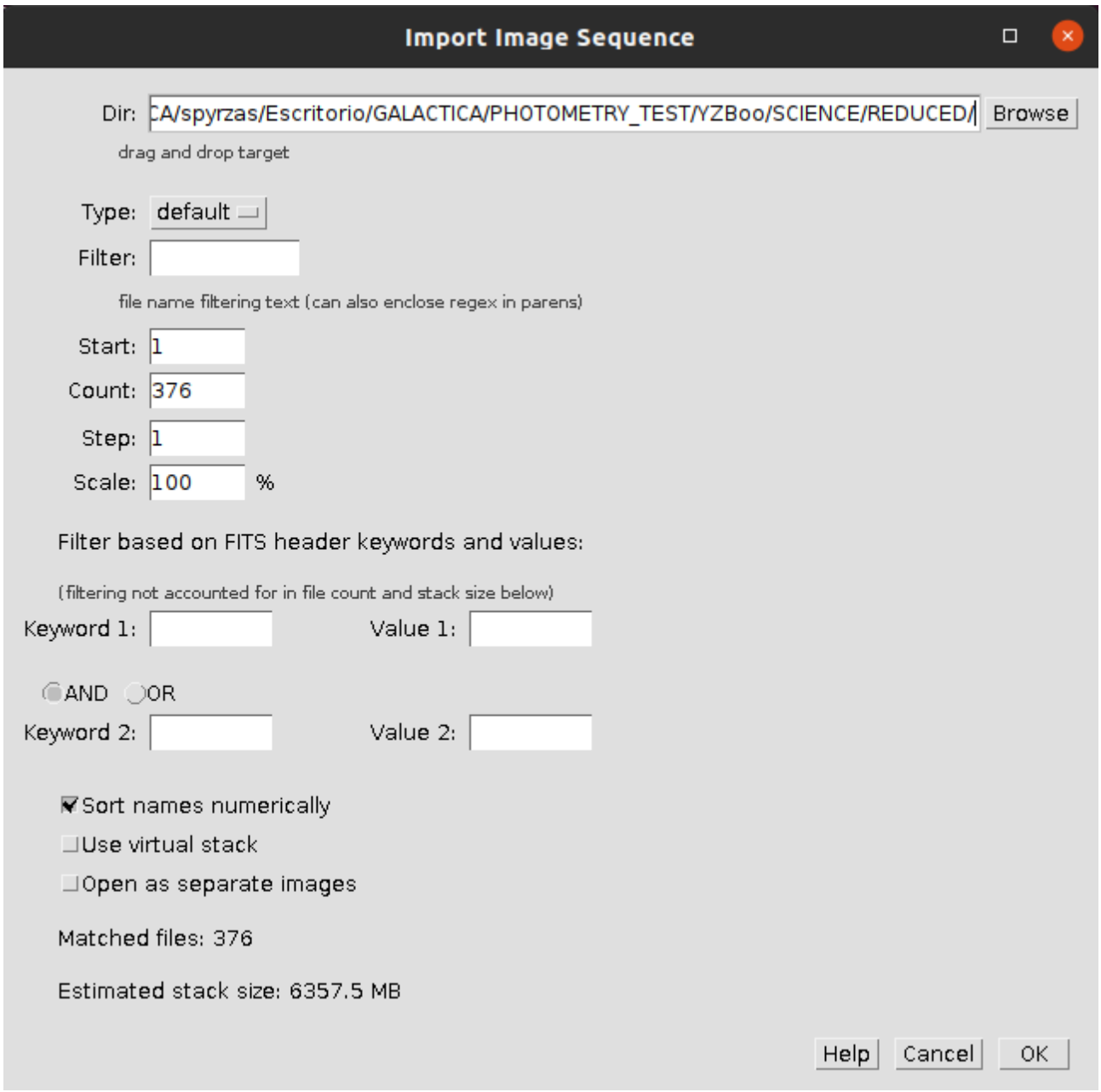


(2) Select “File” → “Import” → “Image Sequence”

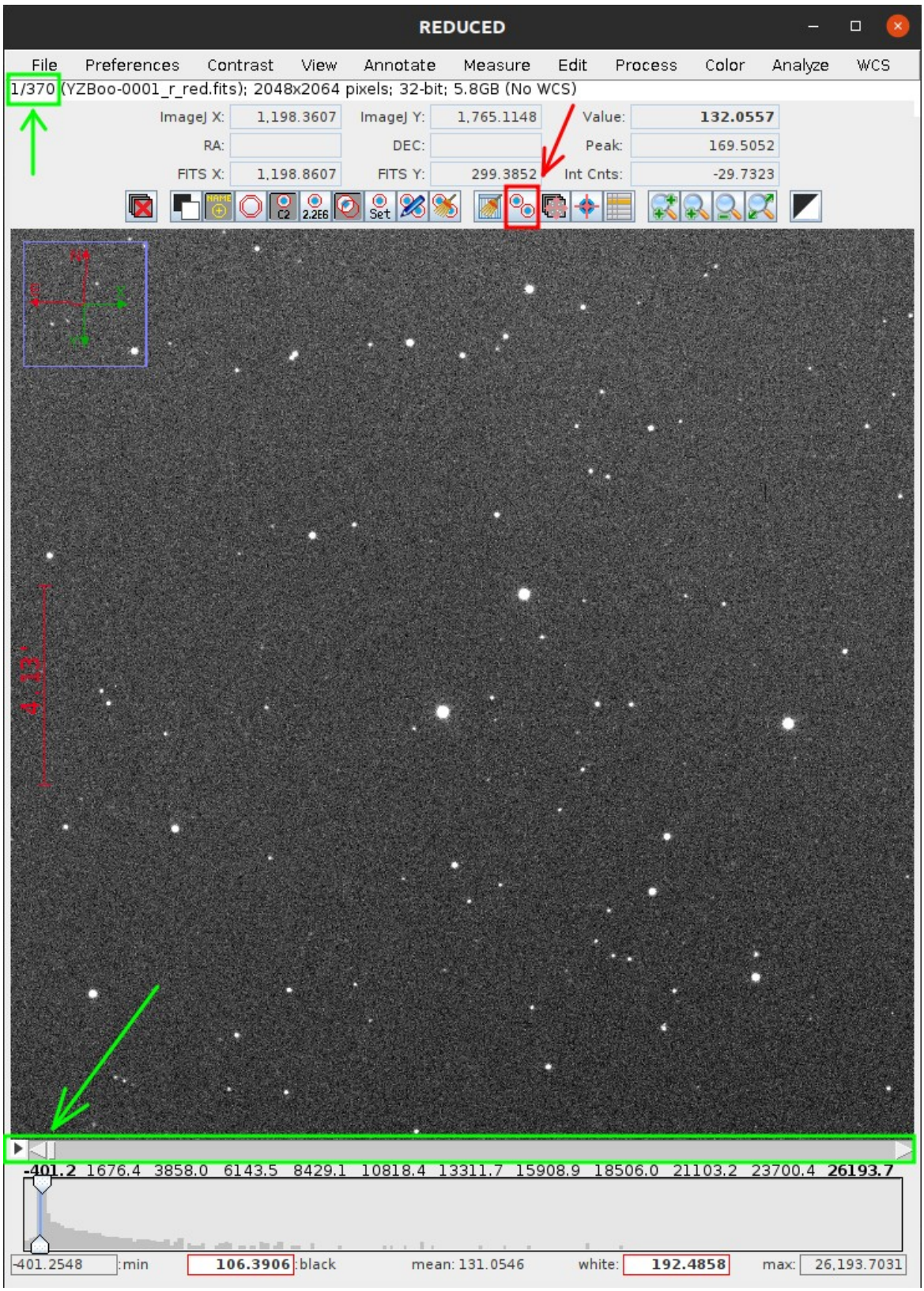


(3) On the new window that appears, click the "**Browse**" button and navigate to the folder with your **reduced** science images of your variable star. In our example, [path_to_data]/YZBoo/SCIENCE/REDUCED

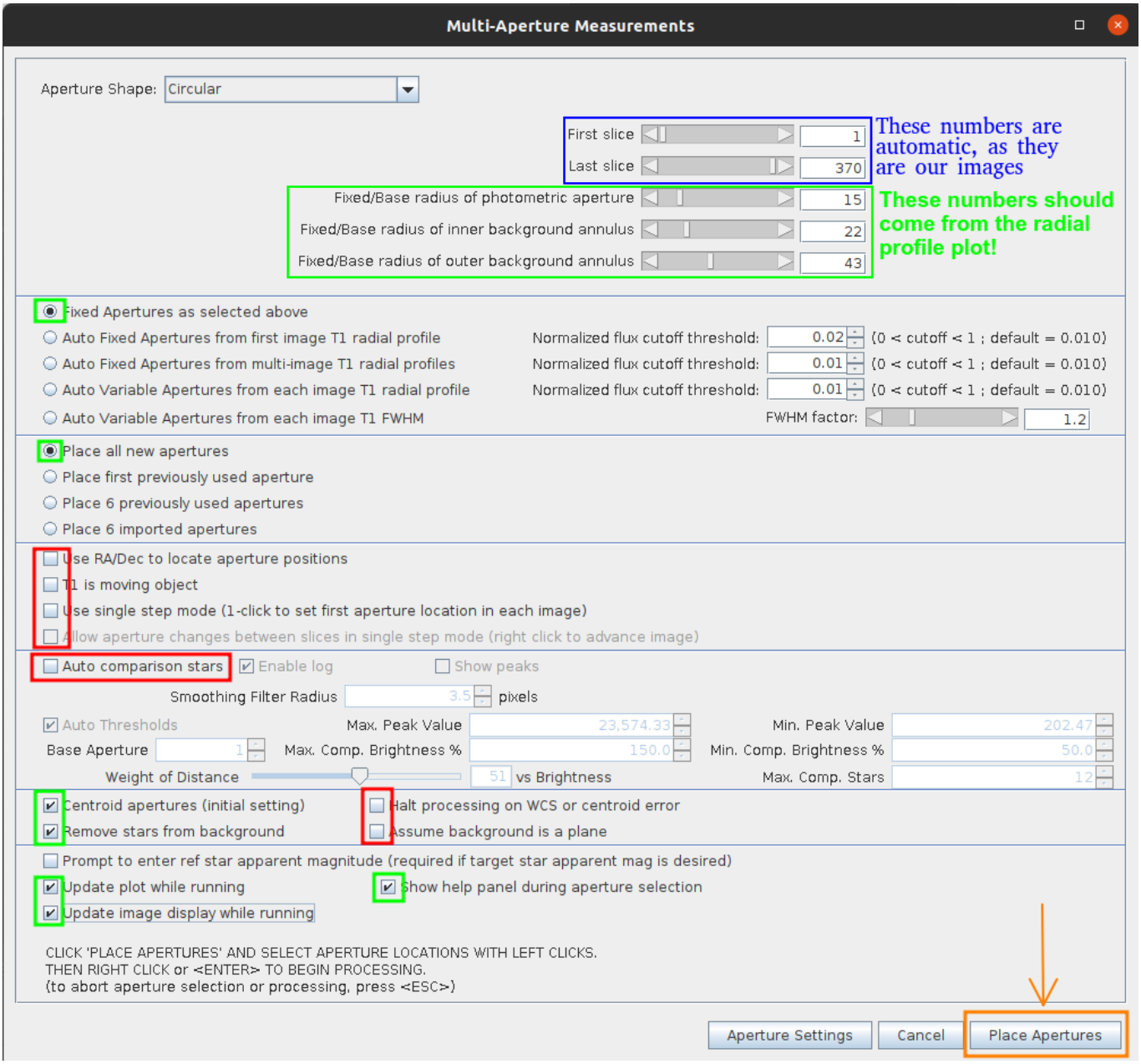
Your window should look like the image below:



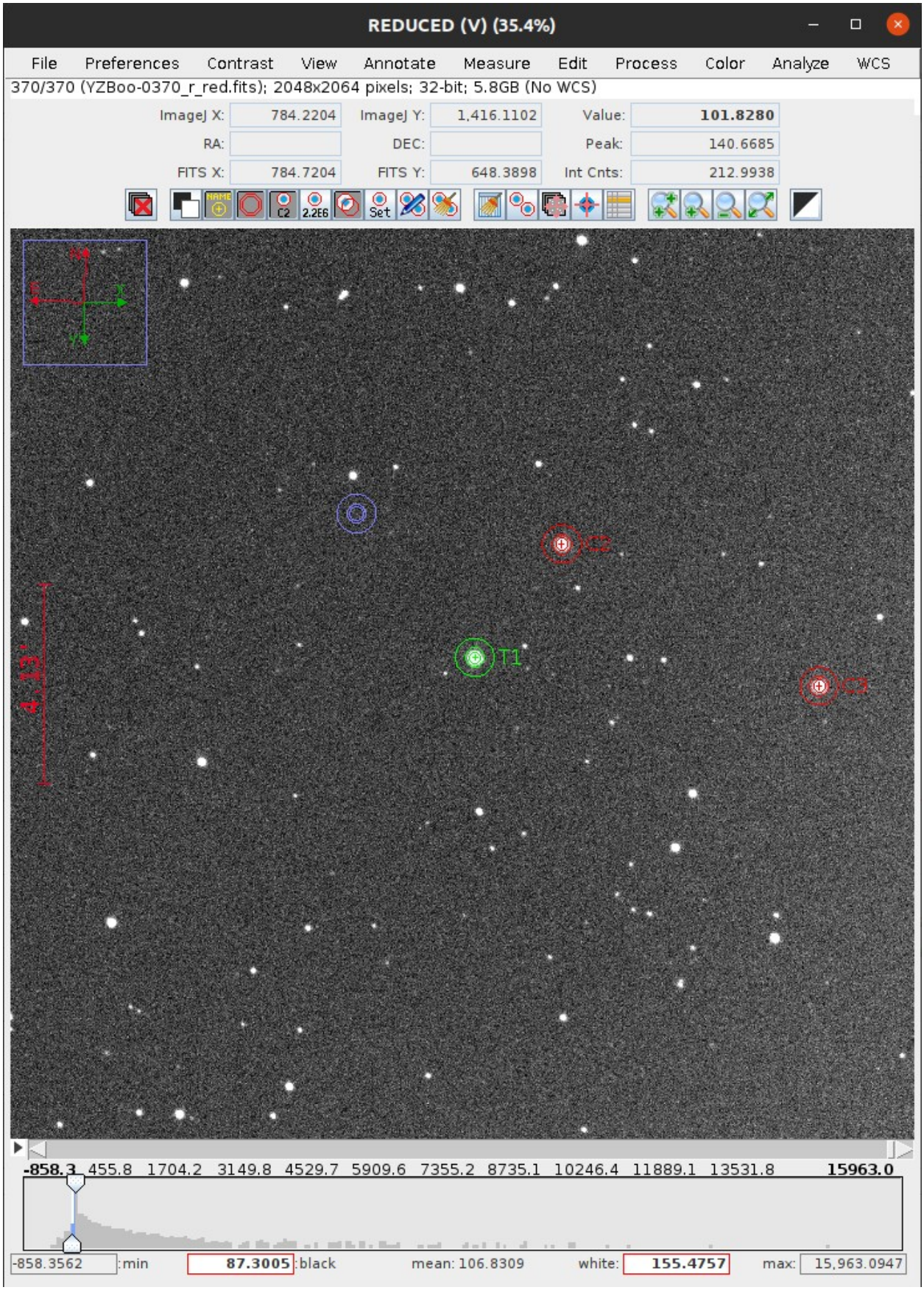
(4) The images will load in a new window like the one below. Notice the **numbers** highlighted on the top-left of the image (1/370): it should match the number of your science frames. Also notice the slider at the bottom. Click the “play” button on the left of the slider. When ready, press the multi-aperture button indicated by the red arrow:



(5) On the new window that opens, pay attention to the various options highlighted on the image below. Set up your window to match our example, but keep in mind, you need to provide the correct aperture and sky annuli values! When ready, press the “Place Apertures” button.

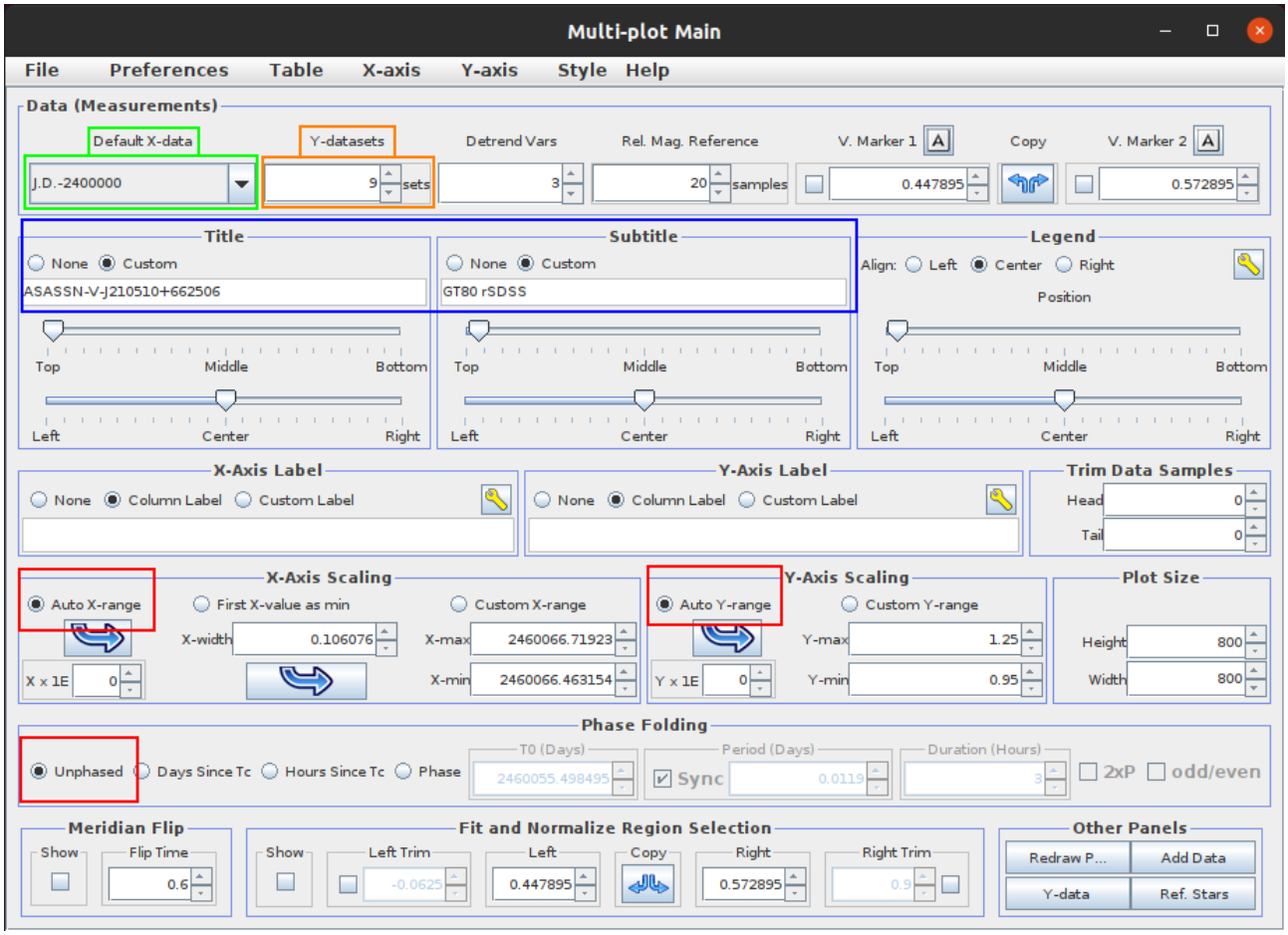


(6) First select your target star and left-click. Then, add as many comparison stars as you want by left-clicking on them. When you are ready, hit “Enter”.



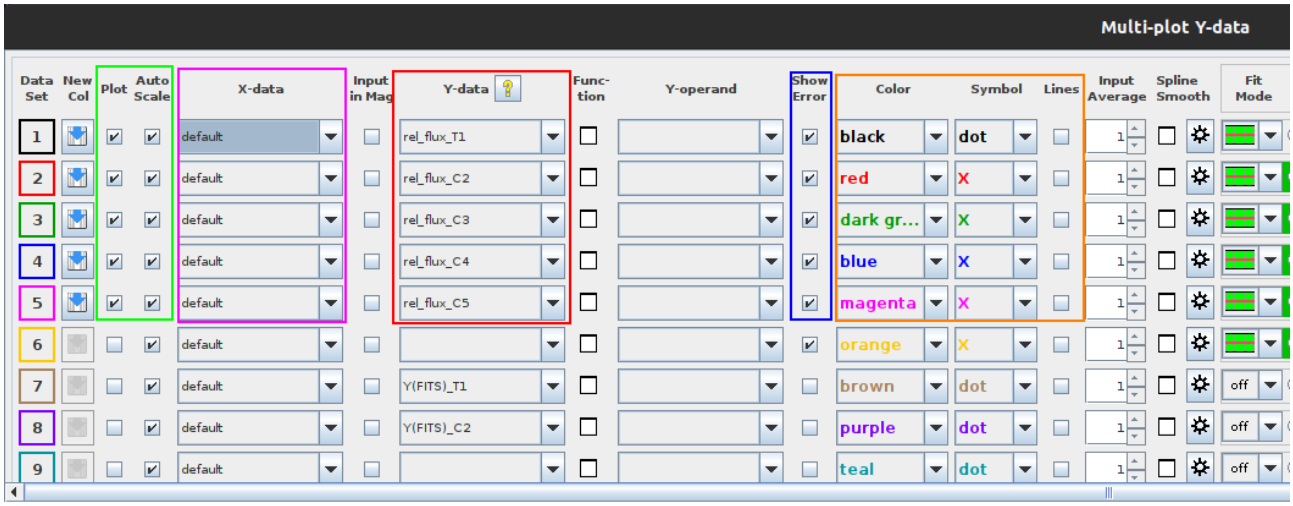
(7) When photometry runs, a lot of windows will open automatically.

To make your plot look better, various options can be found on the “Multi-plot Main” window:

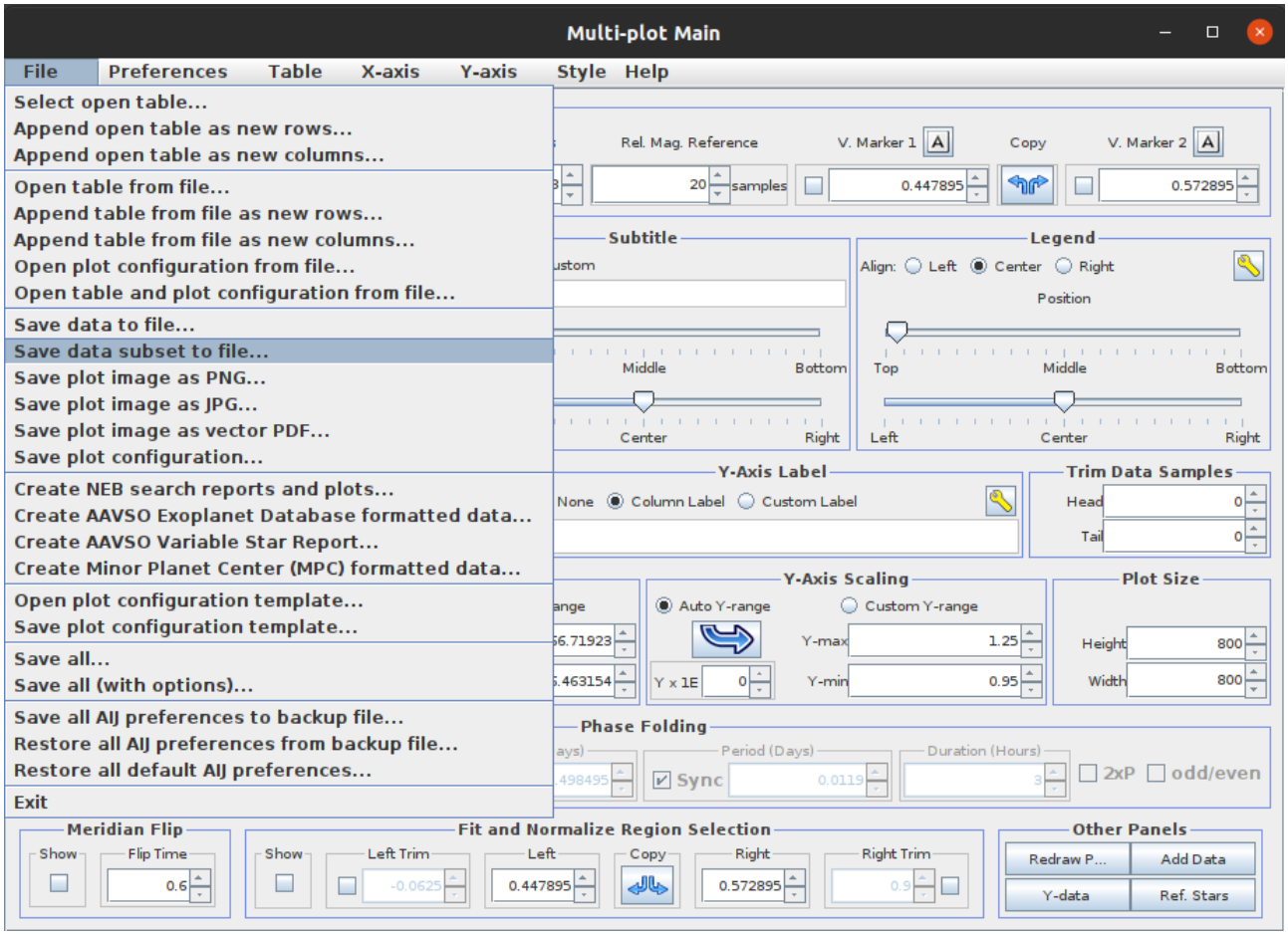


- If you want to include more comparison stars, change the number of **Y-datasets**.
- You can play around with the “**Title**” & “**Subtitle**” options.
- For the X- and Y-range limits, either leave the “Auto...” option selected (as shown in the image above) or experiment with the “Custom…” range options in the corresponding panels.

(8) Other plot options can be found on the “Multi-plot Y-Data” window. For example, you can select which stars to plot (**Plot**), change the color and symbol of the light curve plots, include errorbars (**Show Error**) etc



(9) To save your light curve for further analysis, find the “Multi-plot Main” window and select “File” → “Save data subset to file”



(10) In the new window that opens, select your options as shown in the image below: