

Addendum to Lab 5 instructions:

Dec 9

- Querying SIMBAD for the colors of our target star requires you to search for the object by its coordinates (not its name; that name is not standard - it's just an internal name for the KELT team).
- You can plot the airmass and total comp star counts (tot_C_cnts) (see my annotated screen shot: two-headed arrow); Note that I scaled the airmass with a negative number and also I checked the "Page Rel" box for the airmass and tot_C_cnts data (this makes the scaling and shifting relative to the page's vertical range, not to the actual values of the data, and interprets the input scale and shift numbers as percentages).
- You can de-trend the light curve by the airmass (i.e. divide the light curve by the airmass curve); see the arrow pointing at "Trend Select". You will have to choose "AIRMASS" from the pull down menu ("Trend Dataset"). Note that you can de-trend using other variables, in principle. The "Fit Mode" doesn't need to be set to transit fitting, as it is in the screen shot. You can detrend just based on the out-of-transit data - give it a try. And then you can switch to the transit fit mode via the little pull-down menu. It will both detrend and fit at the same time. Then, note that the detrend parameters are listed in the window that shows the transit fitting parameters.
- You can look in the measurements table (that the AIJ photometry creates) and find the values of the airmass (or any other parameter) and the altitude. Look how low the telescope was pointing for the last few images! You can trim off the points at either end of the light curve. See the second attachment (arrow pointing at "Trim Data Samples"; and note the tail of the arrow is at the last displayed data points in the light curve, but there are several missing - not shown, but still computed, but - importantly - excluded from the light curve fitting).
- In that second screen shot, the other arrow points at the Page Rel check boxes for the airmass and tot_C_cnts.
- Definitely explore the Multi-Plot Main menu interface (where you set the x- and y-axis ranges). It has many, many useful features. For example sliders to control the legend placement.
- Also there, the "fit and normalize region selection" is how you tell the detrending which parts of the light curve the green triple panels in the "Fit Mode" and "Norm/Mag Ref" pull-down menus refer to.
- And from the Multi-plot Main interface, the File > Save All option

will save about six relevant files. This includes a measurements.xls file. When you close and then reopen AIJ, you can drag that file onto the Multi-plot Main menu and it will restore your session. To see your apertures, you can just open an image and drag the saved apertures file onto it and they will show up.