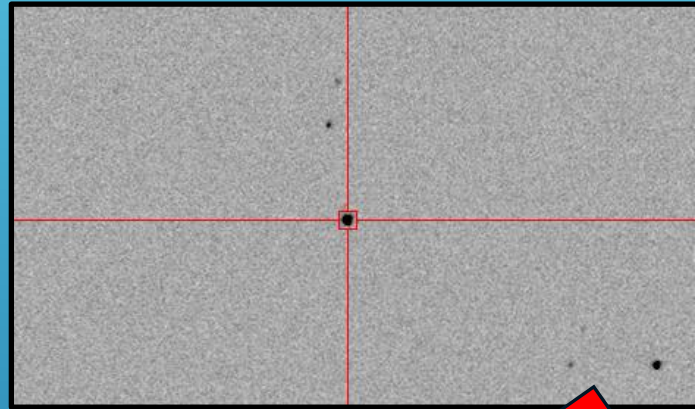


RAPAS Workshop Tycho Tracker

Using *Tycho Tracker* for Photometry

Daniel Parrott
2024 12 14

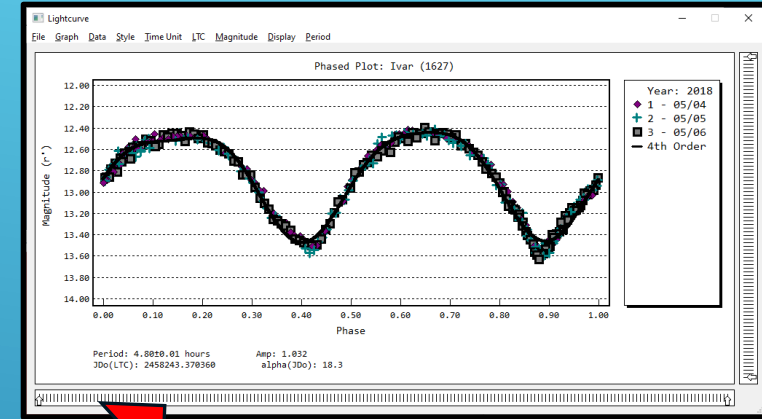
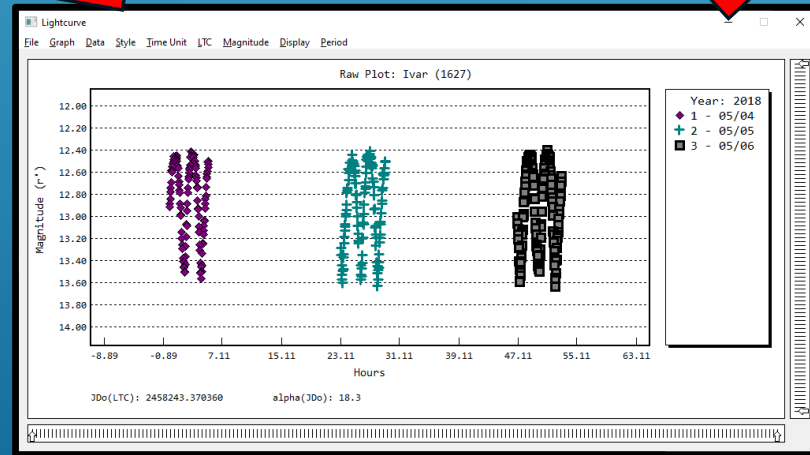
Overview



(1) Raw Data



(2) Raw Plot



(3) Phase Plot

Example: Ivar (1627)

https://www.tycho-tracker.com/download


Datasets

File	Notes	Size
DS1	4 images	7 MB
DS2	39 images	68 MB
DS3	60 images	106 MB
Ivar Lightcurve (night 1)	123 images	573 MB
Ivar Lightcurve (night 2)	135 images	622 MB
Ivar Lightcurve (night 3)	142 images	636 MB
NGC 7790	5 images	175 MB
V0544 And	155 images	393 MB

Available from:

<https://www.tycho-tracker.com/download>

Example: Ivar (1627)

- (1) Add Images
 - (2) Calibrate (if needed)
 - (3) Plate Solve
 - (4) Align Images
 - (5) Set Aperture Settings
 - (6) Select Comparison Stars
 - (7) Generate Measurements
- 
- A decorative graphic consisting of several parallel white lines of varying lengths, slanted diagonally from the bottom right towards the top right, located in the lower right quadrant of the slide.

Example: Ivar (1627)

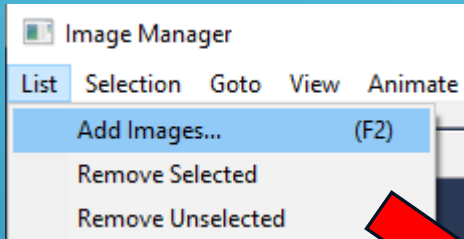


Image Manager window showing a table of image data and summary statistics.

Num	Filename	ExpTime(sec)	DeltaTime (min)	TotalElapsed (min)	Date-Obs	Solved	Width	Height	bpp	Filter	EPH_DATE
1	C:\Users\Daniel\Desktop\Telescope\...	2.000000	0.000000	0.033333	2018-05-04 20:57:13.478	No	1936	1096	16	---	-
2	C:\Users\Daniel\Desktop\Telescope\...	2.000000	2.443217	2.476550	2018-05-04 20:59:40.071	No	1936	1096	16	---	-
3	C:\Users\Daniel\Desktop\Telescope\...	2.000000	2.443183	4.919733	2018-05-04 21:02:06.662	No	1936	1096	16	---	-
4	C:\Users\Daniel\Desktop\Telescope\...	2.000000	2.442767	7.362500	2018-05-04 21:04:33.228	No	1936	1096	16	---	-
5	C:\Users\Daniel\Desktop\Telescope\...	2.000000	2.443183	9.805683	2018-05-04 21:06:59.819	No	1936	1096	16	---	-
6	C:\Users\Daniel\Desktop\Telescope\...	2.000000	2.442733	12.248417	2018-05-04 21:09:26.383	No	1936	1096	16	---	-
7	C:\Users\Daniel\Desktop\Telescope\...	2.000000	2.443000	14.691417	2018-05-04 21:11:52.963	No	1936	1096	16	---	-
8	C:\Users\Daniel\Desktop\Telescope\...	2.000000	3.057483	17.748900	2018-05-04 21:14:56.412	No	1936	1096	16	---	-
9	C:\Users\Daniel\Desktop\Telescope\...	2.000000	2.442750	20.191650	2018-05-04 21:17:22.977	No	1936	1096	16	---	-
10	C:\Users\Daniel\Desktop\Telescope\...	2.000000	2.443000	22.634650	2018-05-04 21:19:49.557	No	1936	1096	16	---	-
11	C:\Users\Daniel\Desktop\Telescope\...	2.000000	2.442950	25.077600	2018-05-04 21:22:16.134	No	1936	1096	16	---	-
12	C:\Users\Daniel\Desktop\Telescope\...	2.000000	2.443517	27.521117	2018-05-04 21:24:42.745	No	1936	1096	16	---	-

Summary statistics:

- Plate Solved: No
- Total Size: 493.75 MB
- Total Exp: 4.067 min
- Total Time: 5.278 hrs
- Image Count: 122

Add Images

Example: Ivar (1627)

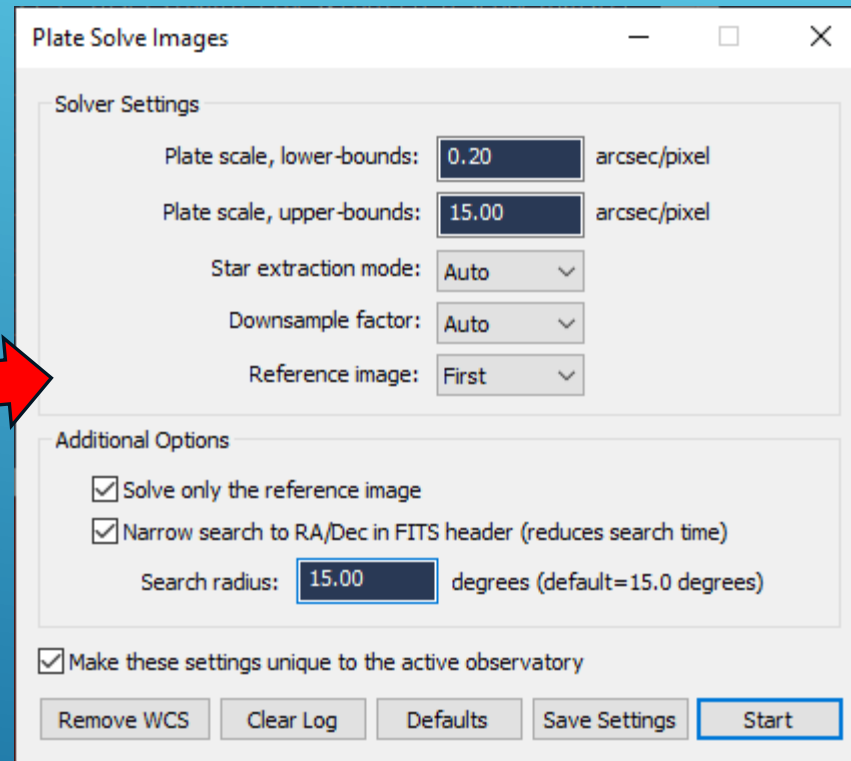
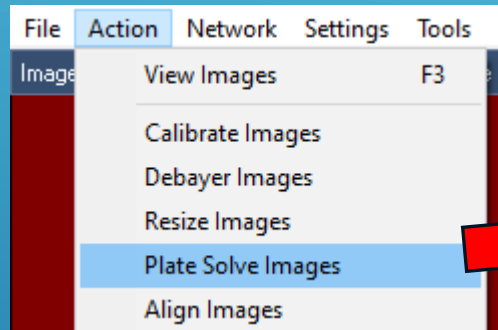
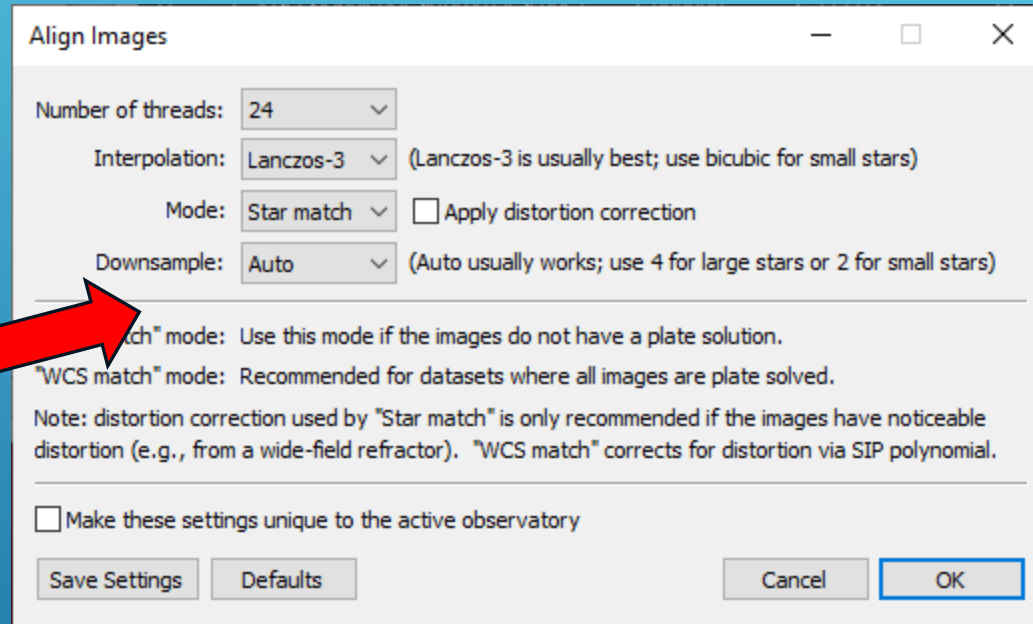
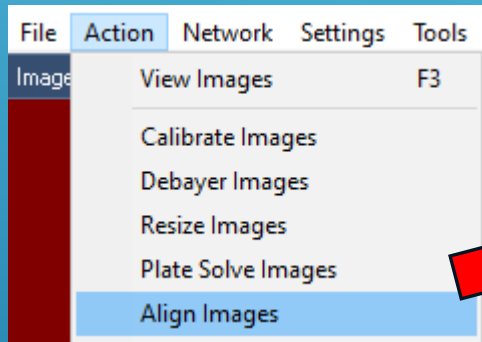


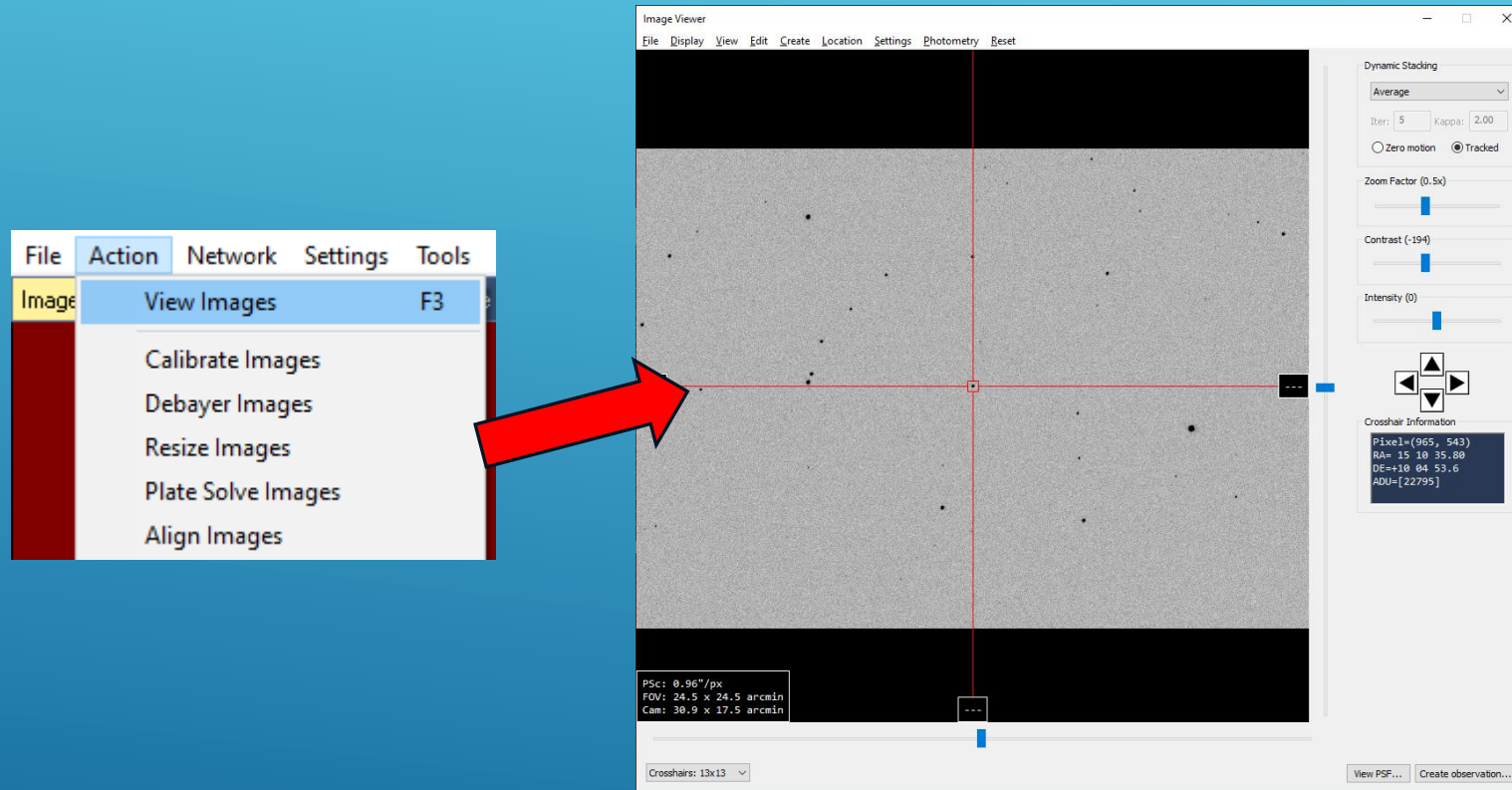
Plate Solve

Example: Ivar (1627)



Align Images

Example: Ivar (1627)



View Images

Example: Ivar (1627)

The image shows a software interface for photometry. On the left, a 'Photometry' menu is open, with 'Modify Aperture Settings' highlighted. A red arrow points from this menu item to a central image of a star field. The star field shows a central star with two concentric red circles around it. To the right of the star field is a dialog box titled 'Aperture -- Target'. The dialog box contains the following settings:

- Aperture Type: Target Comp Stars Force comp stars to use same aperture as target
- Aperture Shape: Circle Ellipse Rectangle Large Aperture Mode
- Radius 1: 4.000000
- Radius 2: 4.000000
- Rotation (degrees): 0.000000
- Dead zone: 2.000000
- Sky annulus: 9.000000

At the bottom of the dialog box, there are buttons for 'Defaults', 'Copy Target to Comp Star', 'Copy Comp Star to Target', and 'Close'.

Set Aperture Settings

Example: Ivar (1627)

Photometry Reset

- Show Photometry Stars
- Load Variable Stars
- ✓ Calibrated Magnitudes
- ✓ Show Active Comp Stars
- Open Active Comp Stars
- Find Comp Stars**
- Modify Aperture Settings
- Modify Sky Computation
- Comet Photometry
- Compute MZERO
- Download AAVSO chart...
- Standard Fields...
- Generate Transforms...

Num	RA	DE	Mag	(B-V)	(V-R)
1	227.844885	9.995905	14.647	---	---
2	227.836704	10.160056	12.541	---	---
3	227.819595	10.175103	14.757	---	---
4	227.817307	10.078994	13.559	---	---
5	227.784845	10.133021	15.872	---	---
6	227.777346	10.193387	15.037	---	---
7	227.751063	10.184002	10.924	---	---
8	227.748869	10.088619	12.420	---	---
9	227.750873	10.083642	11.541	---	---

Min magnitude: 5.0 Max magnitude: 9.0
Min ADU: 0 Max ADU: 65535
Min (B-V): 0.50 Max (B-V): 0.90
Min (V-R): 0.00 Max (V-R): 0.00
Min visibility: 100.0 Max visibility: 100.0
Min SNR: 10.00 Max SNR: 300.00

Radius: 15.0 arcmin from markers

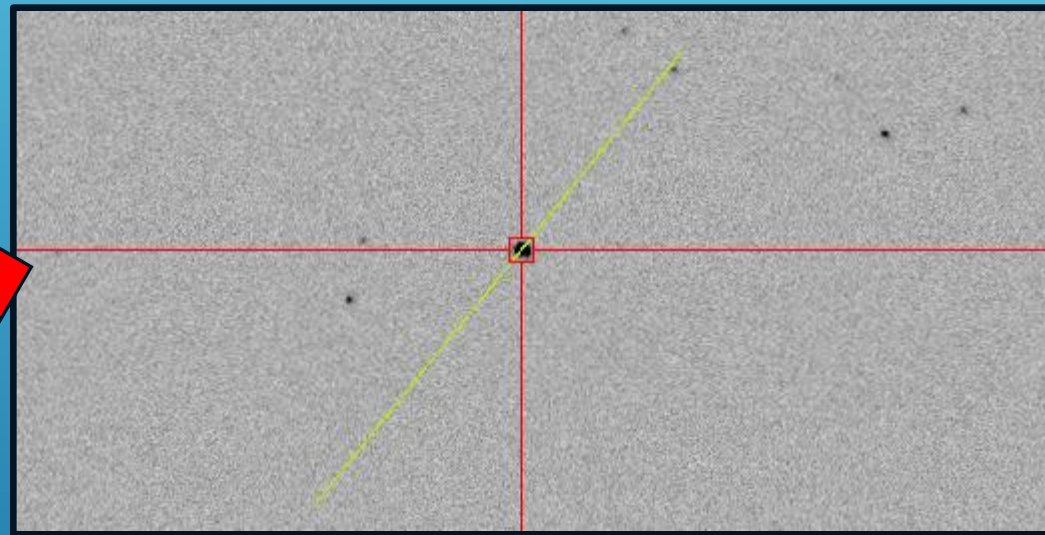
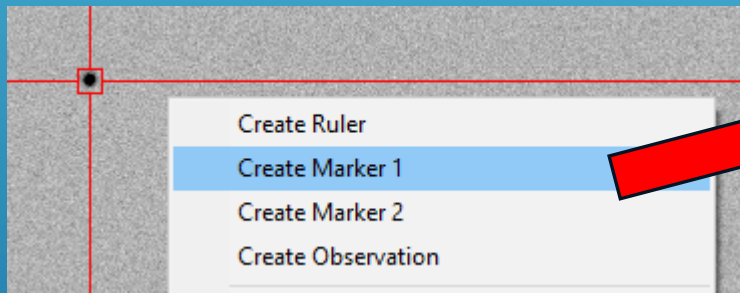
Defaults Apply Filter Refresh

Slope: 1.066 Std: 0.175 mag

True Magnitude vs Instrument Magnitude

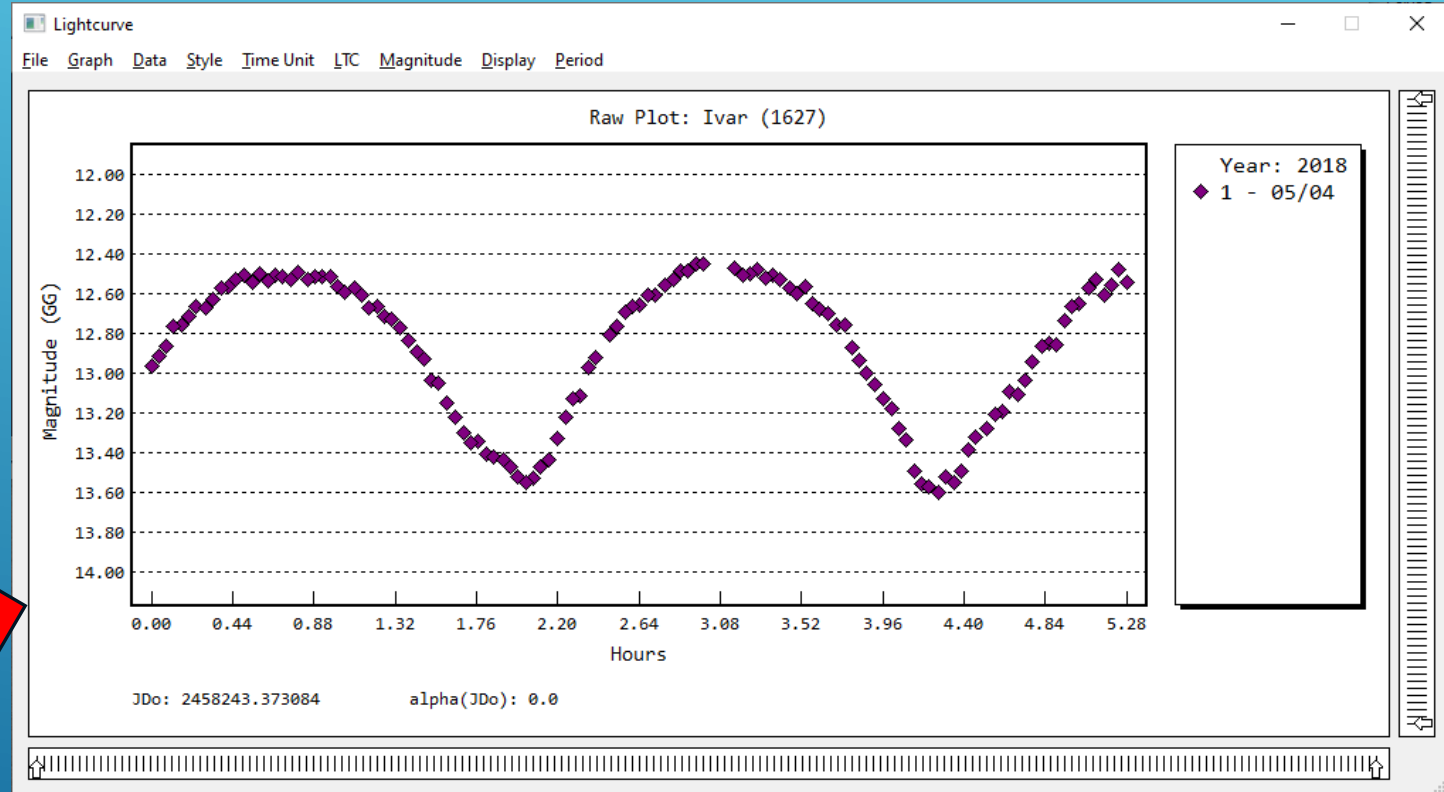
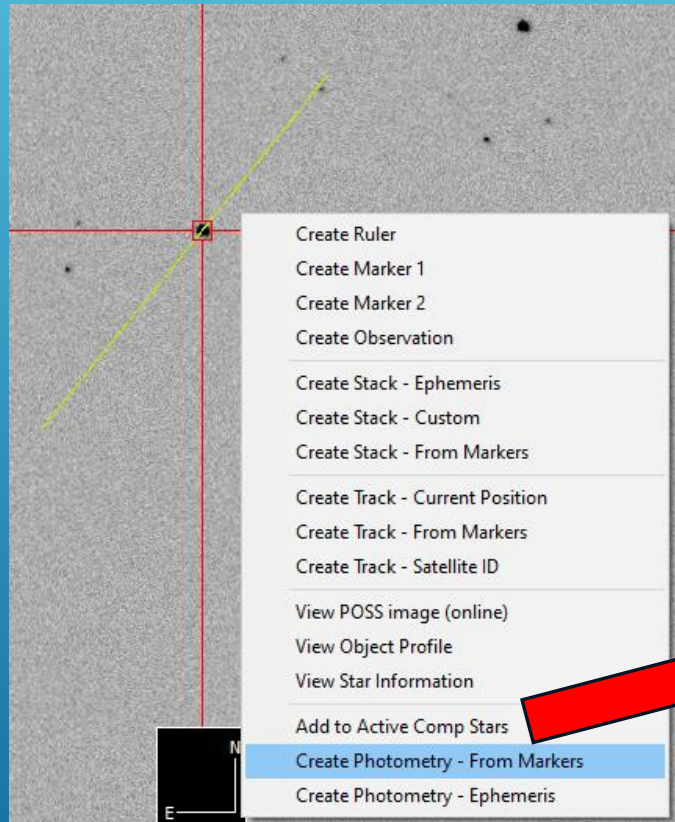
Select Comparison Stars

Example: Ivar (1627)



Specify Object Motion

Example: Ivar (1627)



Generate Measurements

Example: Ivar (1627)

Demo

A decorative graphic consisting of several parallel white lines of varying lengths, slanted upwards from left to right, located in the bottom right corner of the slide.