

FOTOMETRIA DE EXOPLANETAS CON ASTROIMAGEJ



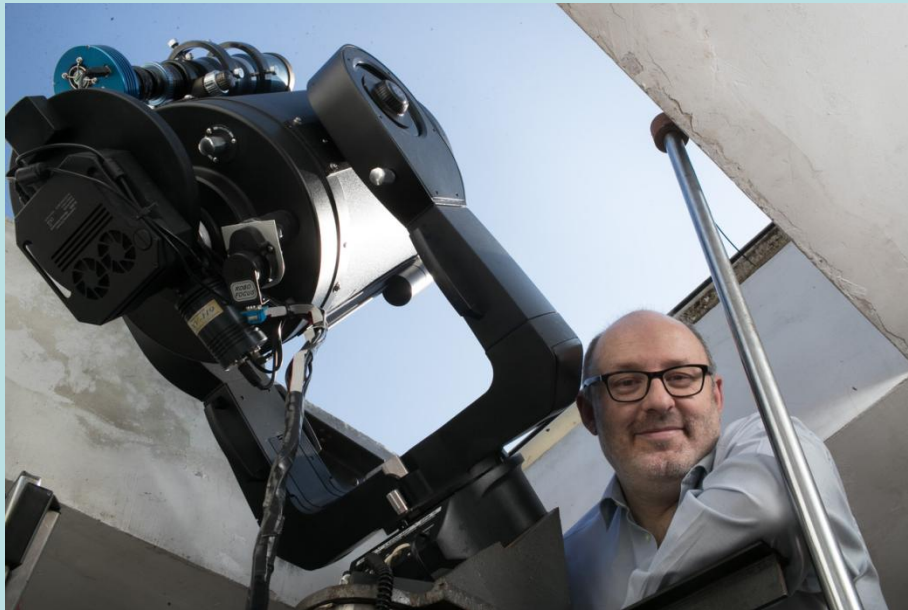
Ramon Naves

Obs. Montcabrer – MPC 213

Cabrils – Barcelona

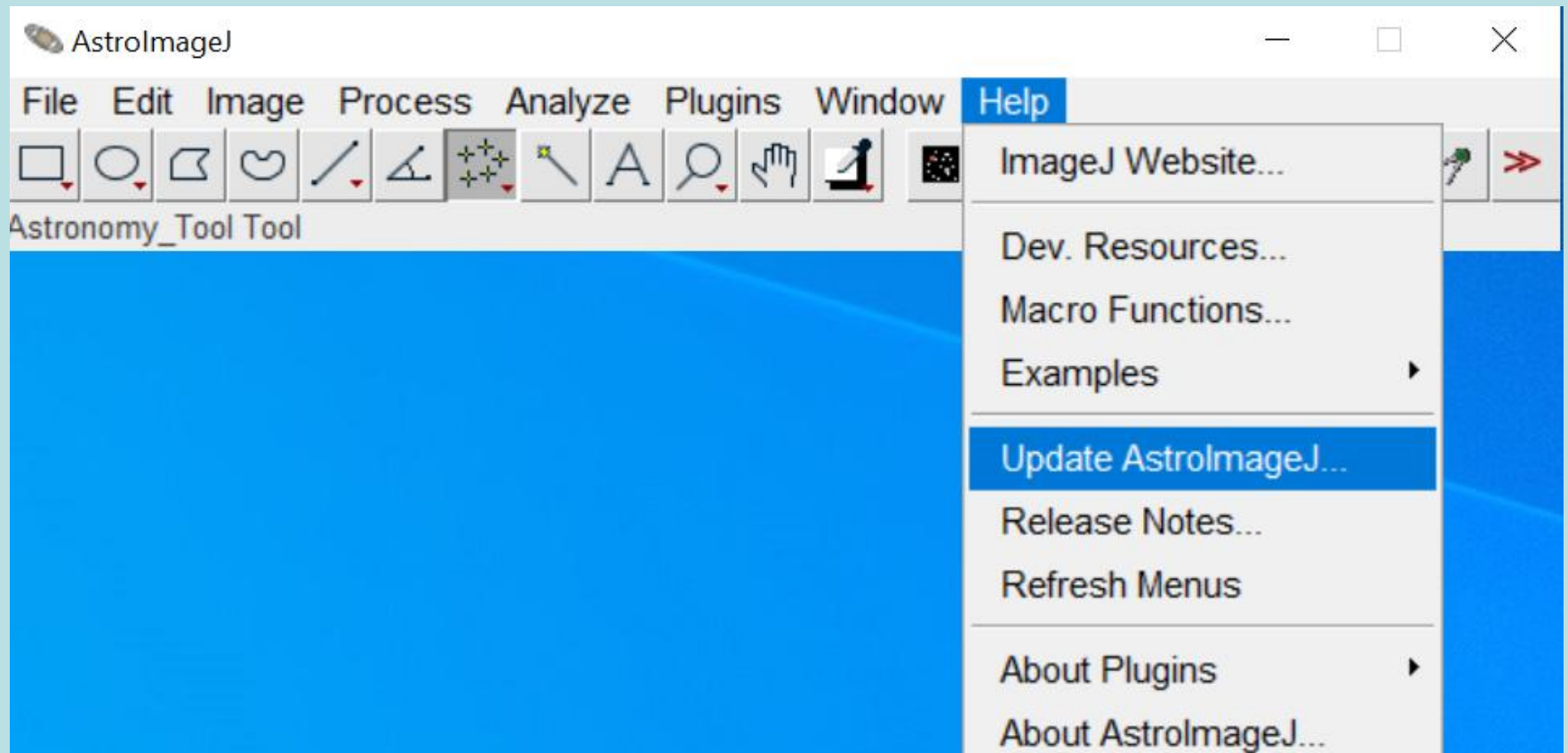
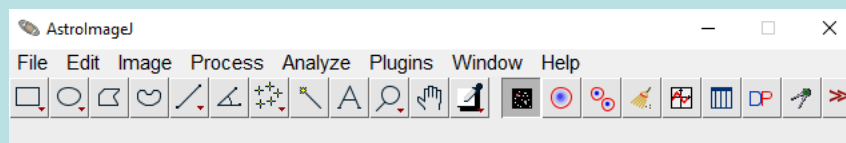
<http://cometas.sytes.net>

ramonnavesnogues@gmail.com



AstroImageJ (AIJ - Image Processing and Photometric Extraction Astronomical Light Curves)

El equipo de desarrollo principal de AstroImageJ incluye a Karen Collins (Observatorio Astrofísico Smithsonian), Kevin Eastridge (Universidad George Mason) y John Kielkopf (Universidad de Louisville)





AstrolmageJ Updater



Upgrade To:

daily build ▼

You are currently running AstrolmageJ 5.3.1.00.

To upgrade or downgrade to a different version, select it above.

The "daily build" option may contain updates since the latest numbered version.

Click "OK" to download and install the version you have selected above.

After a successful download, AstrolmageJ will close.

Restart AstrolmageJ to run the updated version.

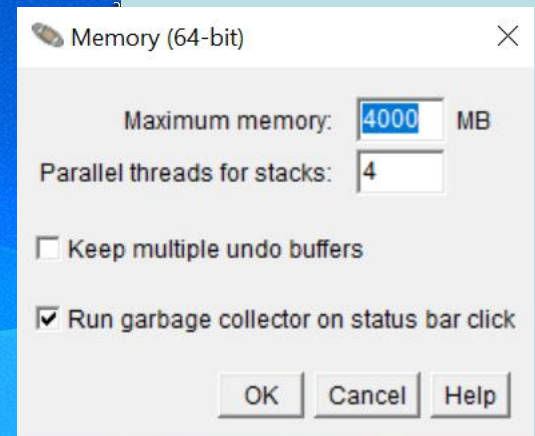
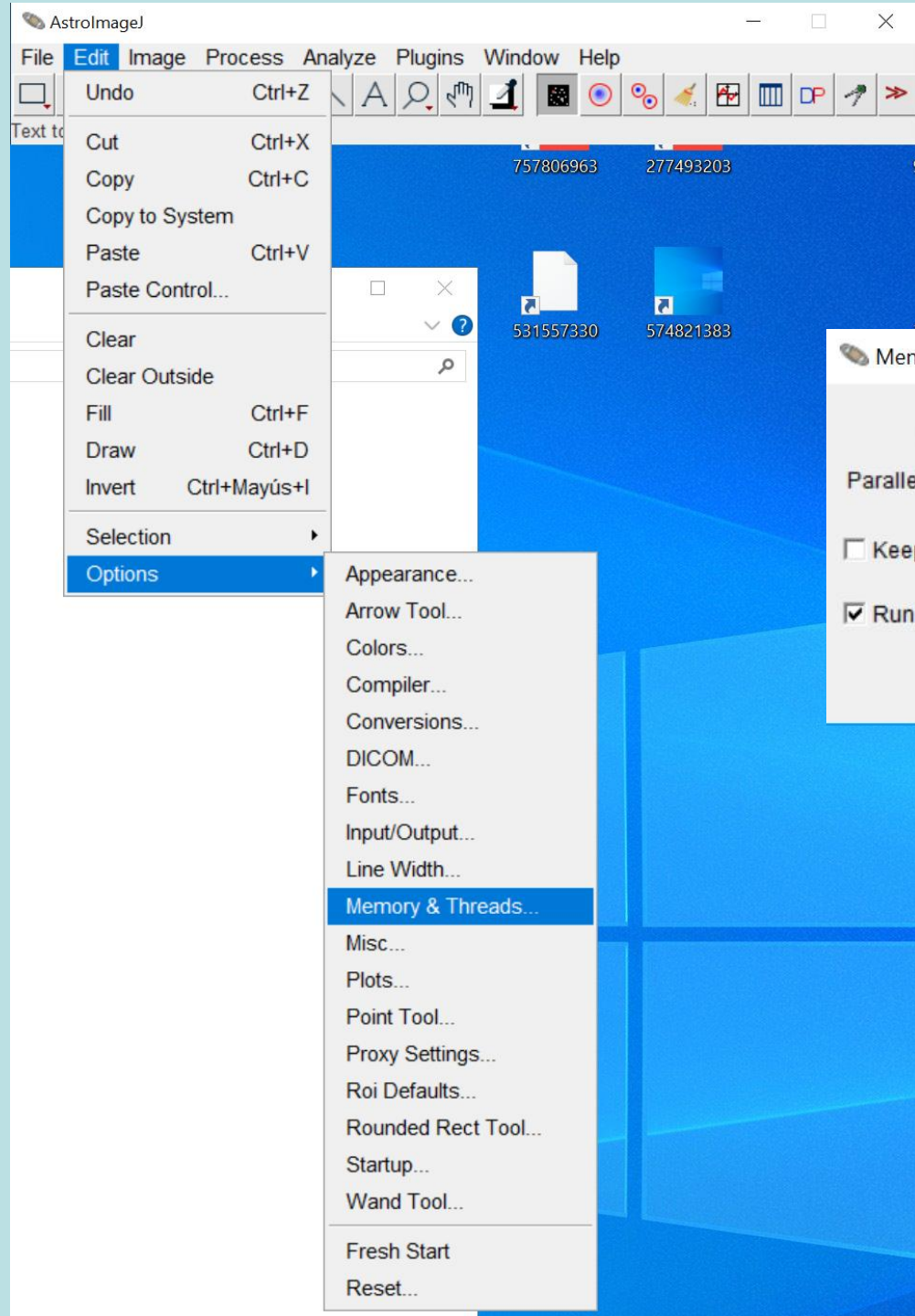
Click "Cancel" to continue using the current version.

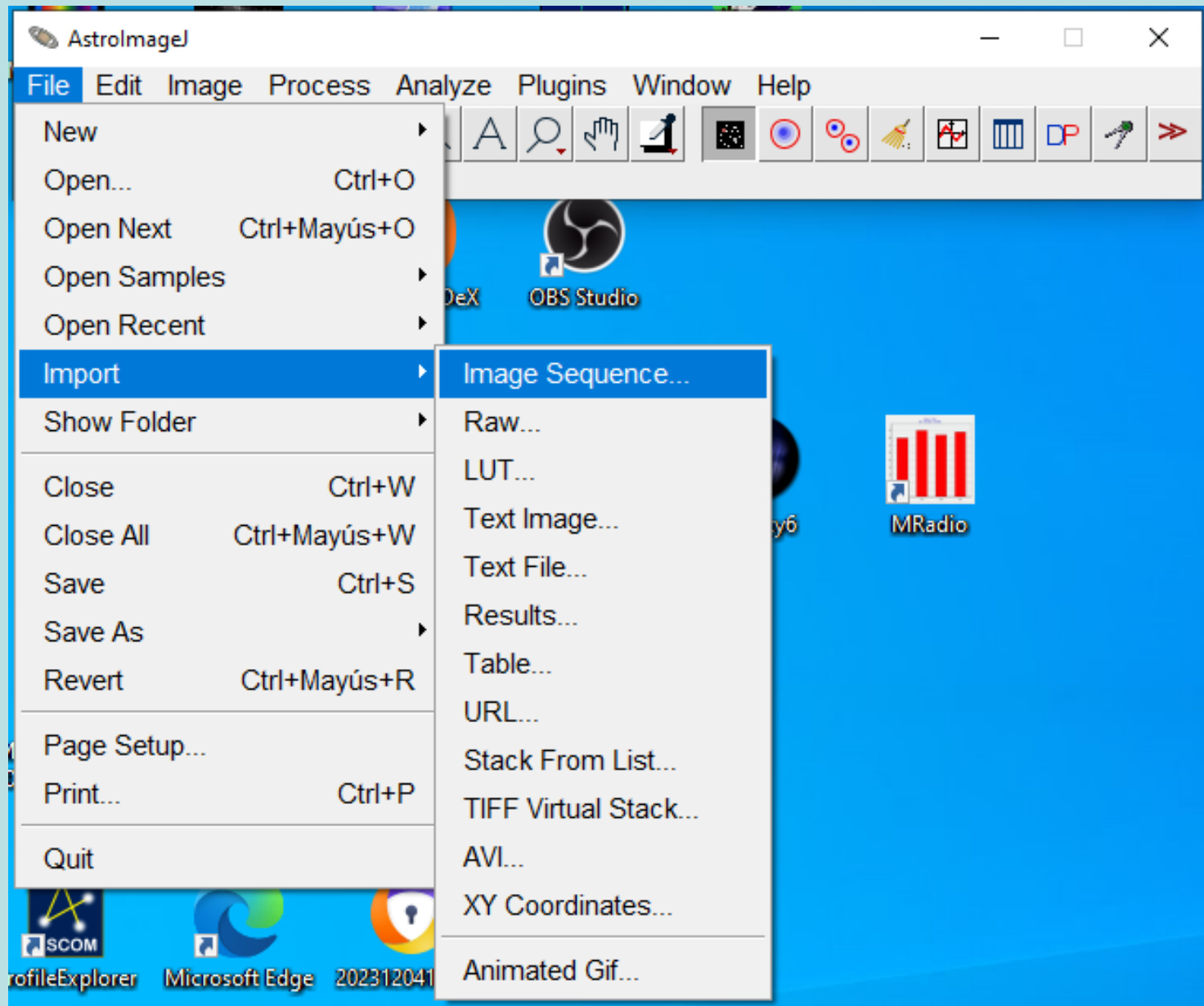
☒ Allow automatic update notifications at startup

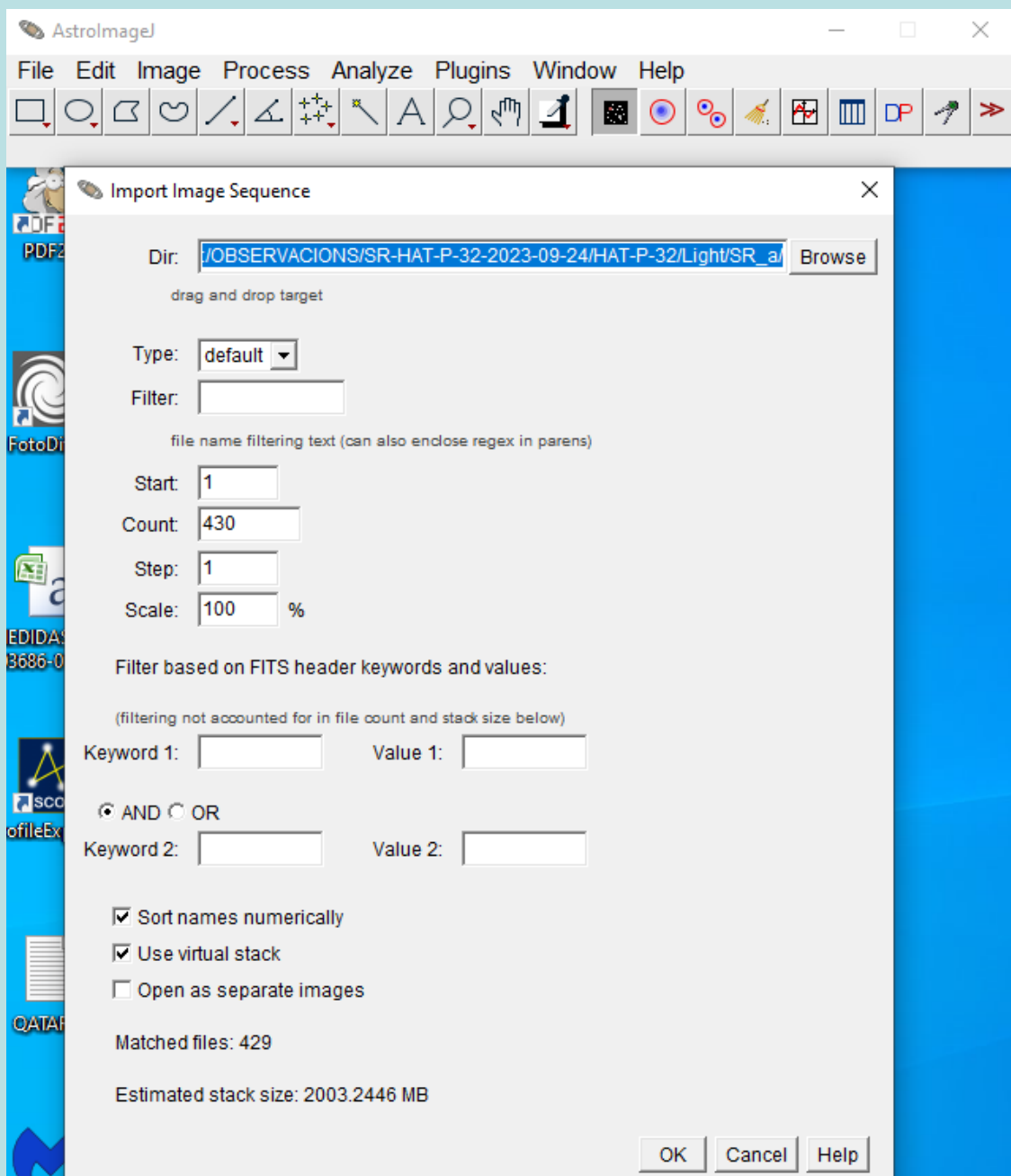
OK

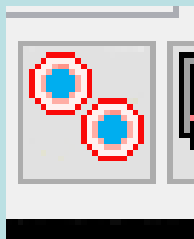
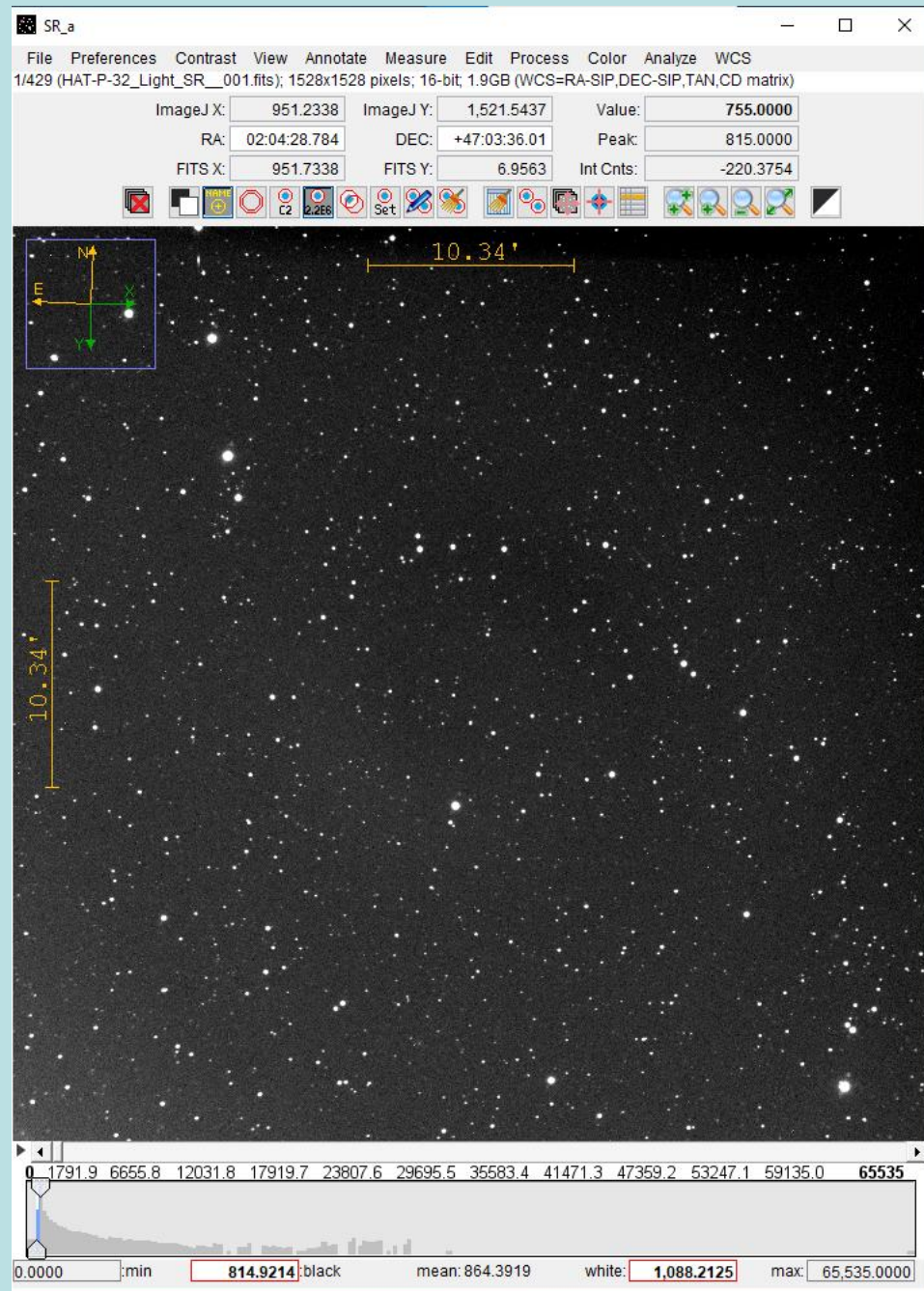
Cancel

Release Notes









Multi-Aperture Measurements

First slice
Last slice
Fixed/Base radius of photometric aperture
Fixed/Base radius of inner background annulus
Fixed/Base radius of outer background annulus

☐ Fixed Apertures as selected above
☐ Auto Fixed Apertures from first image T1 radial profile
☒ Auto Fixed Apertures from multi-image T1 radial profiles
☐ Auto Variable Apertures from each image T1 radial profile
☐ Auto Variable Apertures from each image T1 FWHM

☒ Place all new apertures
☐ Place first previously used aperture
☐ Place 13 previously used apertures
☐ Place 0 imported apertures

☐ Use RA/Dec to locate aperture positions
☐ Use single step mode (1-click to set first aperture location in each image)
☐ Allow aperture changes between slices in single step mode (right click to advance image)

☒ Auto comparison stars
☒ Enable log
☐ Show peaks

Smoothing Filter Radius
Base Aperture

Max. Peak Value
Max. Comp. Brightness %
Weight of brightness vs. distance %

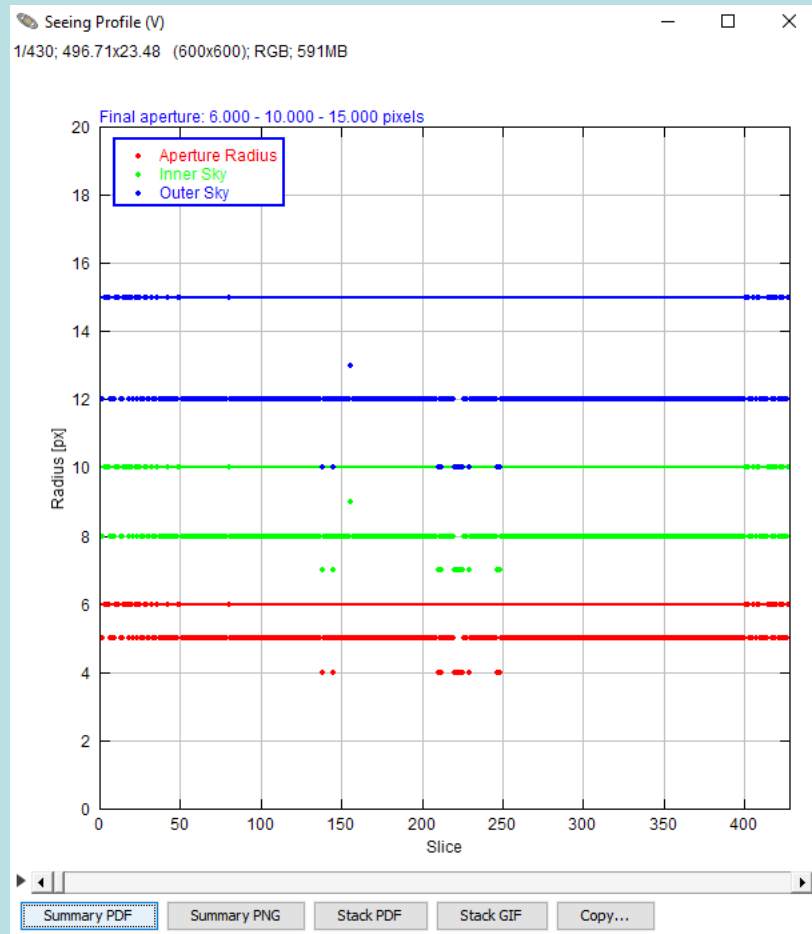
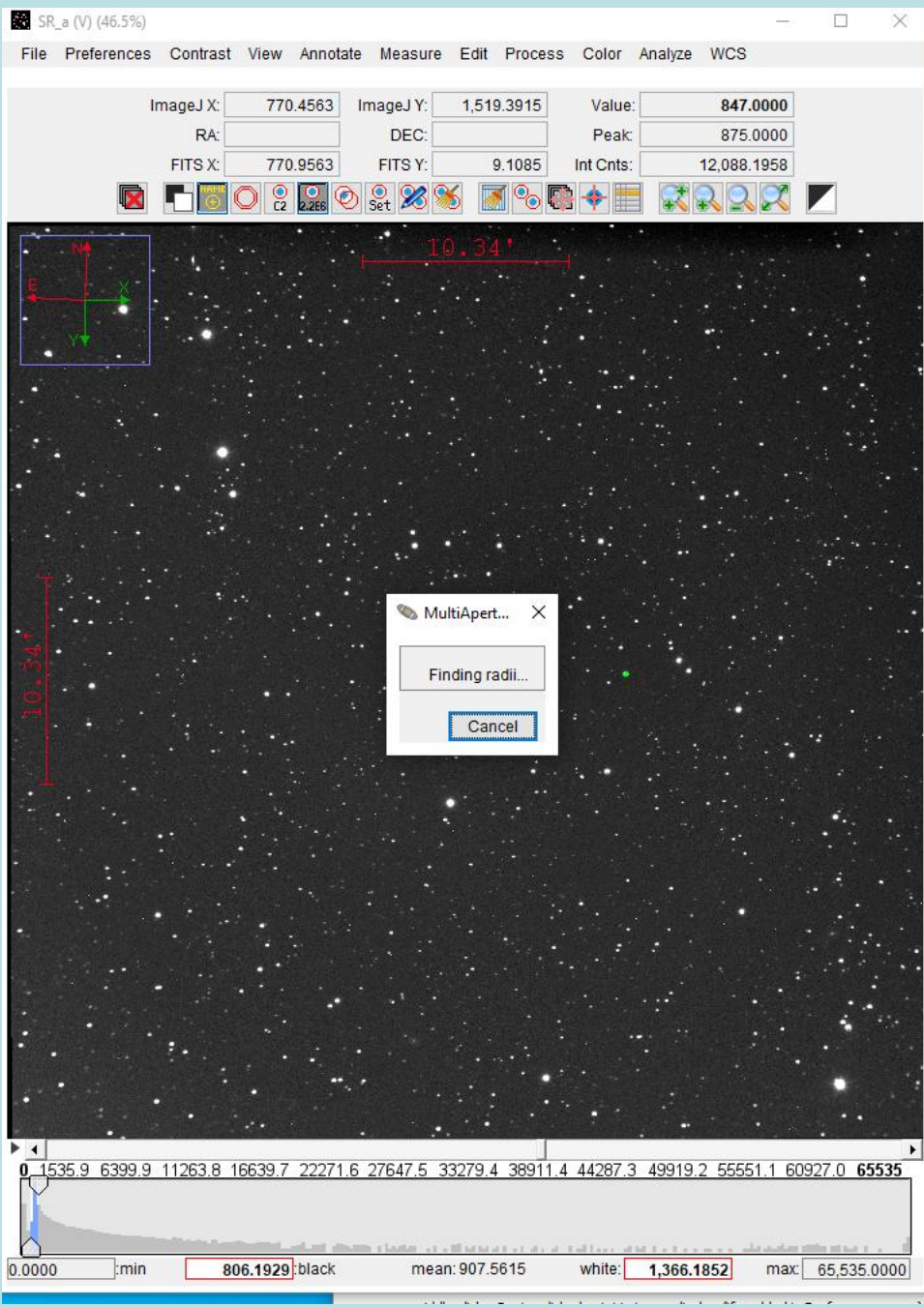
Min. Peak Value
Min. Comp. Brightness %
Max. Comp. Stars

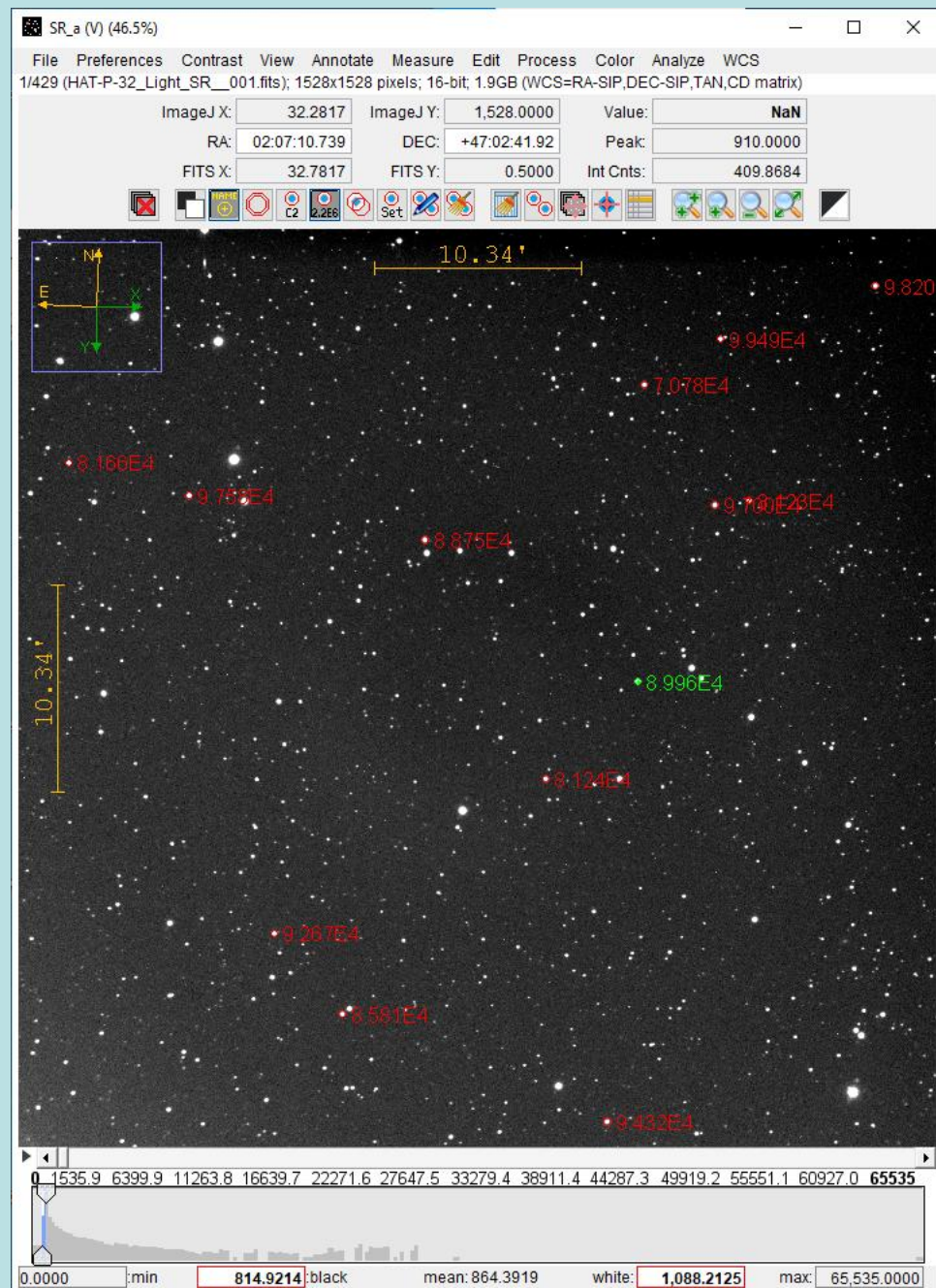
☐ Centroid apertures (initial setting)
☐ Halt processing on WCS or centroid error
☒ Remove stars from background
☐ Assume background is a plane

☐ Prompt to enter ref star apparent magnitude (required if target star apparent mag is desired)
☐ Update plot while running
☒ Show help panel during aperture selection
☒ Update image display while running

CLICK 'PLACE APERTURES' AND SELECT APERTURE LOCATIONS WITH LEFT CLICKS.
THEN RIGHT CLICK or <ENTER> TO BEGIN PROCESSING.
(to abort aperture selection or processing, press <ESC>)

Place Apertures
Aperture Settings
Cancel





rel_flux_T1

User Specified Parameters (not fitted)

Orbital Parameters

Period (days) ☒ Cir Ecc ω (deg)

Host Star Parameters (enter one)

Sp.T. Teff (K) J-K R^* (Rsun) M^* (Msun) ρ^* (cgs)

Transit Parameters

☒ Enable Transit Fit☒ Auto Update Priors

Extract Prior Center Values From Light Curve, Orbit, and Fit Markers

Parameter	Best Fit	Lock	Prior Center	Use	Prior Width	Cust	StepSize
Baseline Flux (Raw)	0.052754275	☐	0.053277771	☐	0.010655554	☐	0.053277771
$(R_p / R_*)^2$	0.017633185	☐	0.054721875	☐	0.027360937	☐	0.054721875
a / R_*	2.267480008	☐	3.764554611	☐	7.0	☐	1.0
T_c	2460341.546567427	☐	2460341.520903	☐	0.015	☐	0.04
Inclination (deg)	88.530247274	☐	78.8	☐	15.0	☐	1.0
Linear LD u1	0.100000000	☒	0.1	☐	1.0	☐	0.1
Quad LD u2	0.300000000	☒	0.3	☐	1.0	☐	0.1
Calculated from model	Depth (ppt) 19.22 b 0.058	☐	t14 (d) 0.181467 t14 (hms) 04:21:19	☐	t23 (d) 0.136013 tau (d) 0.022727	ρ^* (cgs) 0.1851	R_p (Rjup) 1.68

Detrend Parameters

Use	Parameter	Best Fit	Lock	Prior Center	Use	Prior Width	Cust	StepSize
☐	AIRMASS		☒	0.0	☐	1.0	☐	0.1
☐	JD_UTC		☐	0.0	☐	1.0	☐	0.1
☒	Sky/Pixel_T1	-0.000036915125	☐	0.0	☐	1.0	☐	0.1
☒	Width_T1	-0.005357733831	☐	0.0	☐	1.0	☐	0.1
☐	X(FITS)_T1		☐	-0.000000007	☐	1.0	☐	0.1
☐	Y(FITS)_T1		☐	0.0	☐	1.0	☐	0.1

Fit Statistics

	RMS (ppt)	χ^2/dof	BIC	dof	χ^2
Fit Statistics	15.726352	3.105122	311.4840	90	279.4610

Fit Optimization

Outlier Removal: Iter. Remaining:

Detrend Parameter Selection: Max Detrend Pars.: Exhaustive Optimize Min. BIC Thres.: Iter. Remaining:

Plot Settings

☒ Show Model ☒ Show in legend Line Color Line Width ☐ Log Optimization

☐ Show Residuals ☒ Show in legend ☒ Show Error Line Color Line Width Symbol Symbol Color Shift

Fit Control

Fit Update Options: ☒ Auto Update Fit Fit Tolerance Max Allowed Steps Steps Taken

Multi-plot Main
—
□
×

File
Preferences
Table
X-axis
Y-axis
Style
Help

Data (Measurements)

Default X-data
Y-datasets
Detrend Vars
Rel. Mag. Reference
V. Marker 1
Copy
V. Marker 2

JD_UTC
15 sets
3
10 samples
☒
0.48
☒
0.602

Title

☐ None
☒ Text
☐ Programmable

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Top
Middle
Bottom

Left
Center
Right

Subtitle

☐ None
☒ Text
☐ Programmable

Montcabrer 0m3 r filter

Top
Middle
Bottom

Left
Center
Right

Legend

Align:
☐ Left
☒ Center
☐ Right

Position

Top
Middle
Bottom

Left
Center
Right

X-Axis Label

☐ None
☒ Column Label
☐ Custom Label

JD_UTC

Y-Axis Label

☐ None
☒ Column Label
☐ Custom Label

Trim Data Samples

Head
0
Tail
0

X-Axis Scaling

☒ Auto X-range
☐ First X-value as min
☐ Custom X-range

X-width
0.226524
X-max
2458689.612554
X-min
2458689.38603

Y-Axis Scaling

☒ Auto Y-range
☐ Custom Y-range

Y-max
1.025902
Y-min
0.942677

Plot Size

Height
933
Width
1,001

Phase Folding

☒ Unphased
☐ Days Since Tc
☐ Hours Since Tc
☐ Phase

T0 (Days)
2457000

Period (Days)
1
☒ Sync

Duration (Hours)
3
☐ 2xP
☐ odd/even

Meridian Flip

Show
☐
Flip Time
0.328

Fit and Normalize Region Selection

Show
☒
Left Trim
☐ -0.118919
Left
0.48
Copy
Right
0.602
Right Trim
☐ 1.743194

Other Panels

Redraw Plot
Add Data
Y-data
Ref. Stars



Multi-plot Reference Star Settings



Select reference stars to include in tot_C_cnts and rel_flux calculations

Show Magnitudes

Hide Magnitudes

Reference Star Selection

None

All

Save

Recall

Cycle Enabled Stars Less One

Cycle Individual Stars

T1

C2

C3

C4

C5

C6

C7

C8

C9

C10

C11

C12

C13



Green checkbox border - aperture peak count under linearity limit

Yellow checkbox border - aperture peak count over linearity limit

Red checkbox border - aperture peak count over saturation limit

Save/Show Current Configuration

Save Table

Save Apertures

Send to Multi-aperture

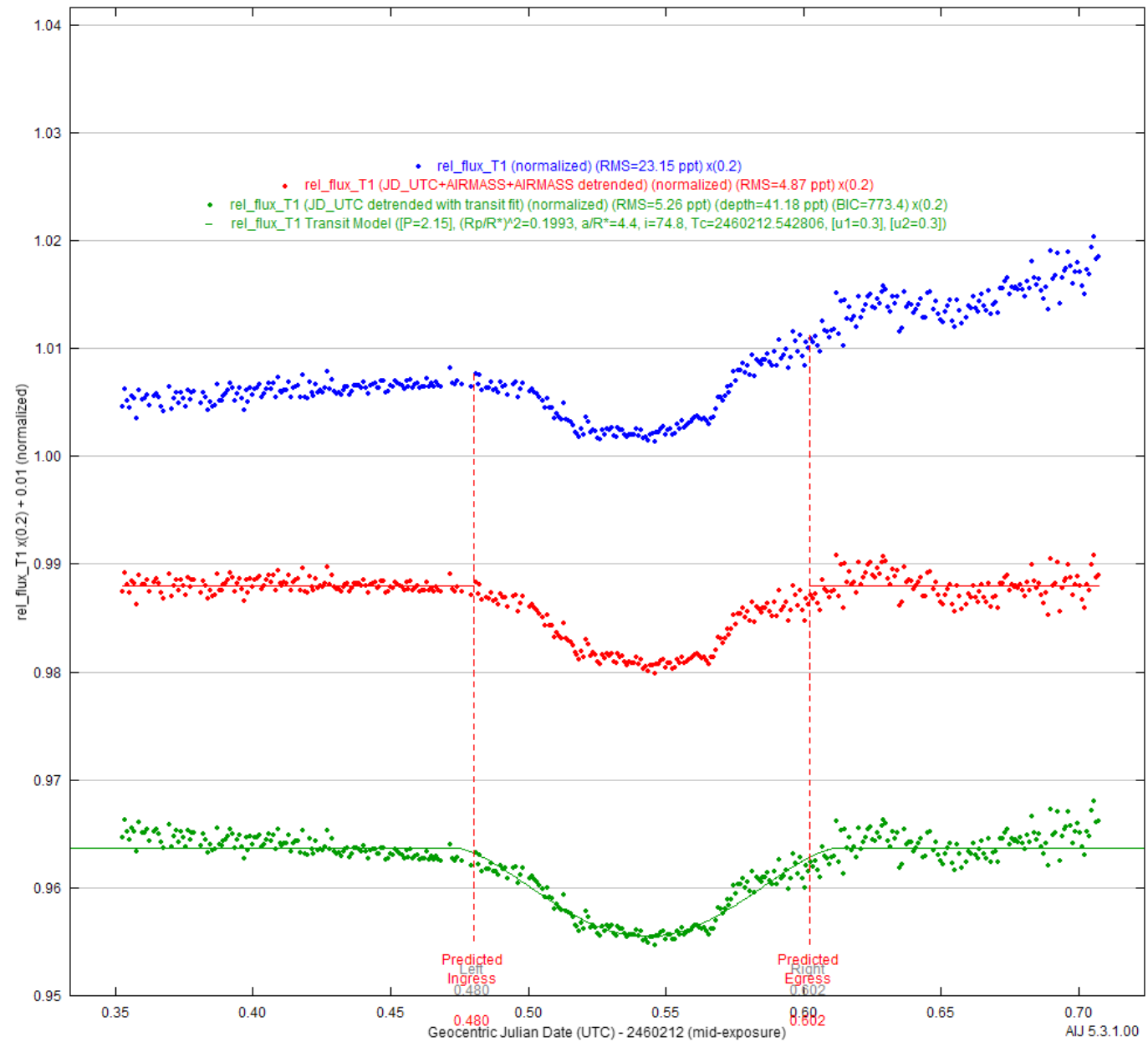
Show Apertures

Multi-plot Y-data

Data Set	New Col	Plot	Auto Scale	X-data	Input in Mag	Y-data	Function	Y-operand	Show Error	Color	Symbol	Lines	Input Average	Spline Smooth	Fit Mode	Trend Select	Trend Coefficient	Trend Dataset	Norm/ Mag Ref	Out Mag	Page Rel	Scale	then Shift	Out Bin Err	BinSize (min)	Legend Type	Custom Legend	Data Set
1			☒	default	☐	rel_flux_T1	☐	JD_UTC	☐	blue	dot	☐	1		off	☒	0			☐		1	0.64	☐	1		Legend1	1
2			☒	default	☐	rel_flux_T1	☐	JD_UTC	☐	red	dot	☐	1			☒	0.0183127	JD_UTC		☐		1	0.61	☐	1		Legend2	2
3			☒	default	☐	rel_flux_T1	☐	JD_UTC	☐	dark gre...	dot	☐	2			☒	0.0031848	AIRMASS		☐		1	0.585	☐	1		Legend3	3
4			☒	default	☐	rel_flux_C4	☐		☐	red	dot	☐	1		off	☒	0			☐		1	0.06	☐	1		Legend4	4
5			☒	default	☐	rel_flux_C5	☐		☐	orange	dot	☐	1		off	☒	0			☐		1.8	-0.065	☐	1		Legend5	5
6			☒	default	☐	rel_flux_C6	☐		☐	yellow	dot	☐	1		off	☒	0			☐		1	-0.025	☐	1		Legend6	6
7			☒	default	☐	rel_flux_C7	☐		☐	brown	dot	☐	1		off	☒	0			☐		1	-0.03	☐	4		Legend7	7
8			☒	default	☐	rel_flux_C8	☐		☐	purple	dot	☐	1		off	☒	0			☐		1	-0.04	☐	5		Legend8	8
9			☒	default	☐	rel_flux_T1	☐		☐	dark gre...	circle	☐	1		off	☒	0.0000376			☐		0.9	-0.07	☐	5		Legend9	9
10			☒	BJD_TDB	☐	rel_flux_C10	☐		☐	black	dot	☐	1		off	☒	0			☐		1	-0.045	☐	5		Legend10	10
11			☒	BJD_TDB	☐	rel_flux_C11	☐		☐	dark gray	dot	☐	1		off	☒	0			☐		0.4	-0.05	☐	5		Legend11	11
12			☒	BJD_TDB	☐	rel_flux_C12	☐		☐	orange	dot	☐	1		off	☒	0.0019474			☐		1	0	☐	5		Legend12	12
13			☒	default	☐	rel_flux_C13	☐		☐	light gray	dot	☐	1		off	☒	0			☐		0.9	-0.06	☐	5		Legend13	13
14			☒	default	☐		☐		☐	green	dot	☐	1		off	☒	0			☐		1	-0.065	☐	5		Legend14	14
15			☒	default	☐		☐		☐	dark gre...	dot	☐	1		off	☒	0			☐		1	-0.075	☐	5		Legend15	15
16			☒	default	☐		☐		☐	light blue	dot	☐	1		off	☒	0			☐		1	-0.075	☐	5		Legend16	16
17			☒	default	☐		☐		☐	blue	dot	☐	1		off	☒	0			☐		1	-0.08	☐	5		Legend17	17
18			☒	default	☐	Width_T1	☐		☐	gray	dot	☒	1		off	☒	0			☐		15	-48	☐	5		Legend18	18
19			☒	default	☐	Sky/Pixel_T1	☐		☐	yellow	dot	☒	1		off	☒	0			☐		17	-54	☐	5		Legend19	19
20			☒	default	☐	AIRMASS	☐		☐	teal	dot	☒	1		off	☒	0			☐		22	-40	☐	5		Legend20	20
21			☒	default	☐	tot_C_ents	☐		☐	brown	dot	☒	1		off	☒	0			☐		21	-40	☐	5		Legend21	21
22			☒	default	☐	X(FITS)_T1	☐		☐	pink	dot	☒	1		off	☒	0			☐		15	-55	☐	5		Legend22	22
23			☒	default	☐	Y(FITS)_T1	☐		☐	light blue	dot	☒	1		off	☒	0			☐		15	-52	☐	5		Legend23	23

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Montcabrer 0m3 r filter



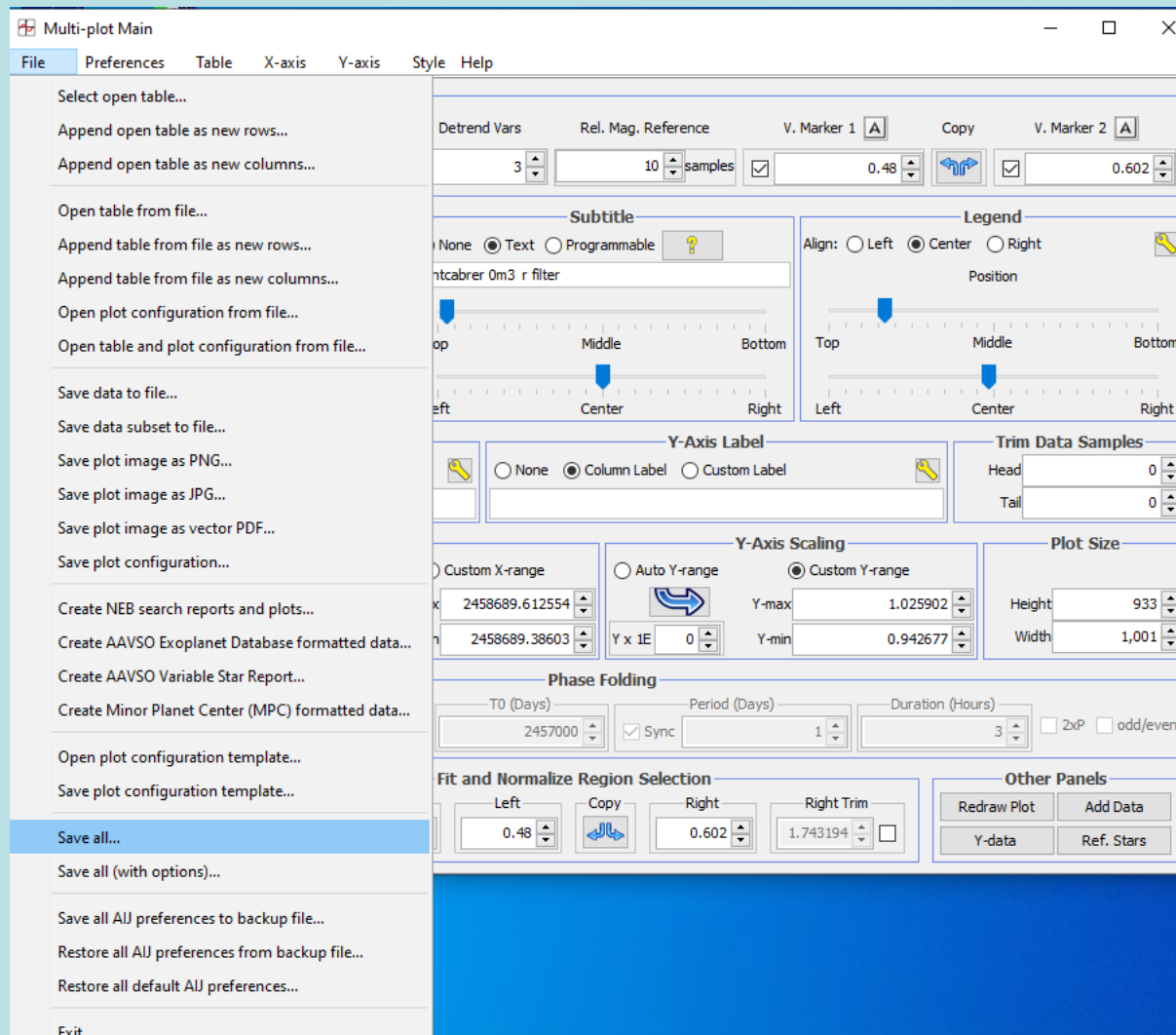
Help

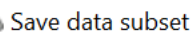
Copy...

PDF

PNG

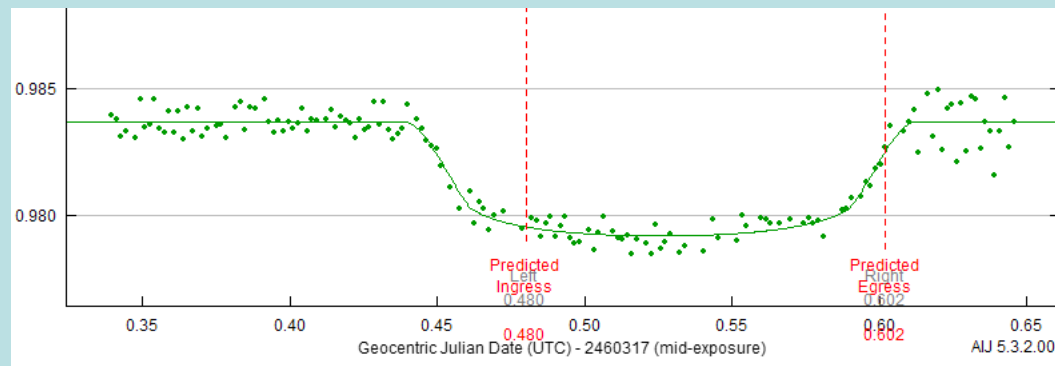
x=0.6243, y=1.0228

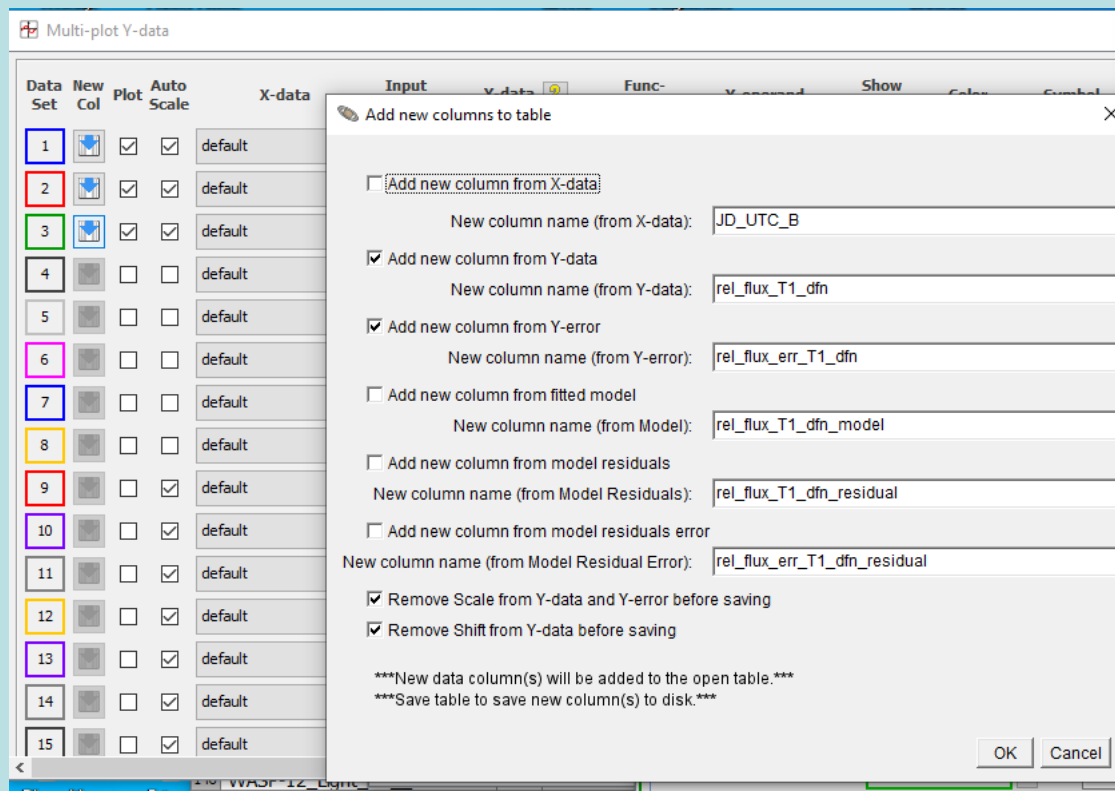




Number of data selection boxes (next time):

OK Cancel





Save data subset

Select datasets in the order (left to right) desired in the output file.
No column will be output for blank selections.

Number of data selection boxes (next time): 12

	Column	Enabled
01:	JD.UTC	☒
02:	rel_flux_T1_dfn	☒
03:	rel_flux_err_T1_dfn	☒
04:		☒
05:		☒
06:		☒
07:		☒
08:		☒
09:		☒
10:		☒
11:		☒
12:		☒

☐ Save column headings ☒ Comment headings with #

☐ Save row numbers ☐ Save row labels

OK Cancel

Multi-plot Y-data									
Data Set	new Col	Plot	Auto Scale	X-data	Input in Mag	Y-data	Function	Y-operand	
1		☐	☒	default	☐	rel_flux_T1	☐	JD.UTC	
2		☐	☒	default	☐	rel_flux_T1	☐	JD.UTC	
3		☐	☒	default	☐	rel_flux_T1	☐	JD.UTC	
4		☐	☐	default	☐	rel_flux_C2	☐		
5		☐	☐	default	☐	rel_flux_C8	☐		
6		☐	☐	default	☐	rel_flux_C9	☐		
7		☐	☐	default	☐		☐		
8		☐	☐	default	☐		☐		
9		☒	☒	default	☐	CCD-TEMP	☐	JD.UTC	
10		☒	☒	default	☐	Width_T1	☐	JD.UTC	
11		☒	☒	default	☐	Sky/Pixel_T1	☐	JD.UTC	
12		☒	☒	default	☐	AIRMASS	☐	JD.UTC	
13		☒	☒	default	☐	tot_C_cnts	☐	JD.UTC	
14		☒	☒	default	☐	X(FITS)_T1	☐	JD.UTC	
15		☒	☒	default	☐	Y(FITS)_T1	☐	JD.UTC	

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Montcabrer Om3 r filter

