

DEEPSKY IMAGE STACKING – SIRIL HAF2023



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AGENDA

Adresárová štruktúra dát

Stacking so skriptami

Manuálny stacking

Základná úprava obrázku

Siril

Softvér môžete stiahnuť od výrobcu SW zadarmo z adresy <https://siril.org/download>

K dispozícií sú verzie pre Linux, Windows a Mac

Návody : <https://siril.org/tutorials/>

Dokumentácia: <https://siril.org/docs/>



ADRESÁROVÁ ŠTRUKTÚRA DÁT



Štruktúra dát

- WINDOWS
- C:\....\<Objekt>\light
- C:\....\<Objekt>\darks
- C:\....\<Objekt>\biases
- C:\....\<Objekt>\flats


SPRACOVANIE SO SKRIPTAMI

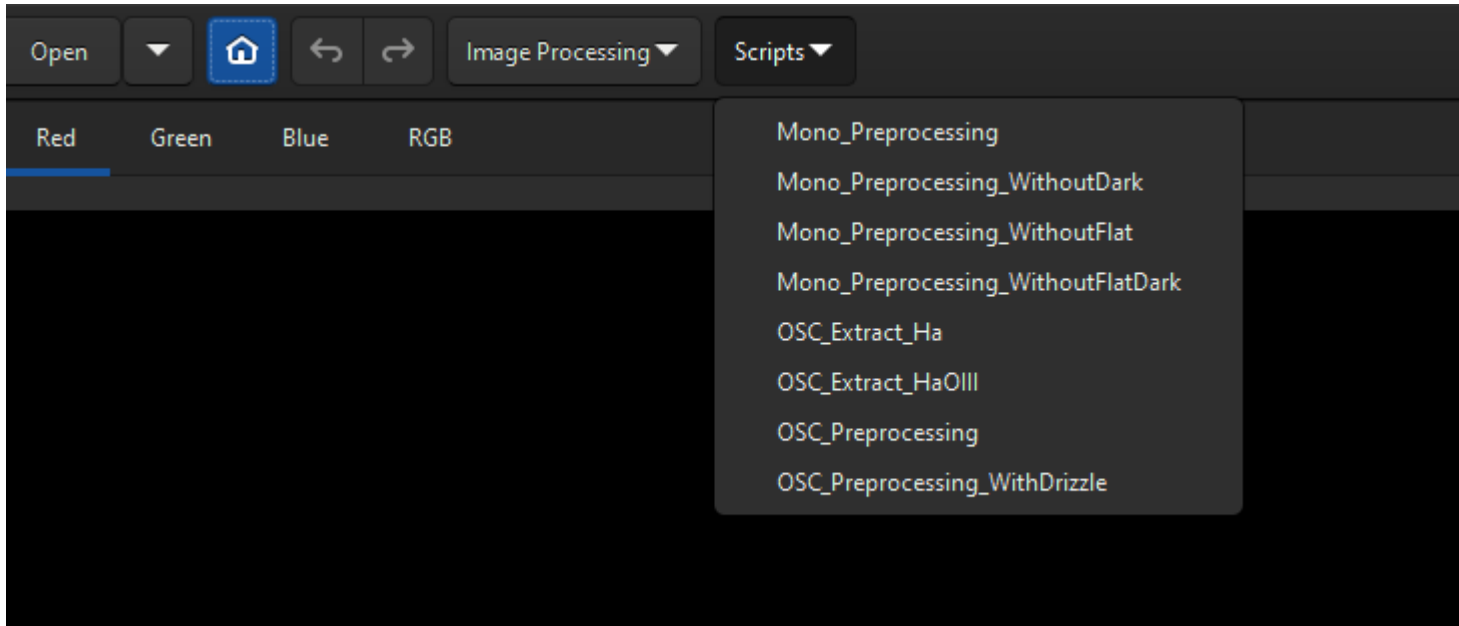


Skripty

- https://free-astro.org/index.php?title=Siril:scripts#Using_scripts
- Možete si stiahnuť pomocné skripty napr. Mono_Preprocessing_WithoutFlat.ssf
- Nakopírovať do c:\Program Files\SiriL\scripts\
- -> po spustení aplikácie sú skripty k dispozícii

Skripty

- 1. Nastavenie pracovného adresára 
- 2. Nasleduje výber skriptu podľa dostupných dát

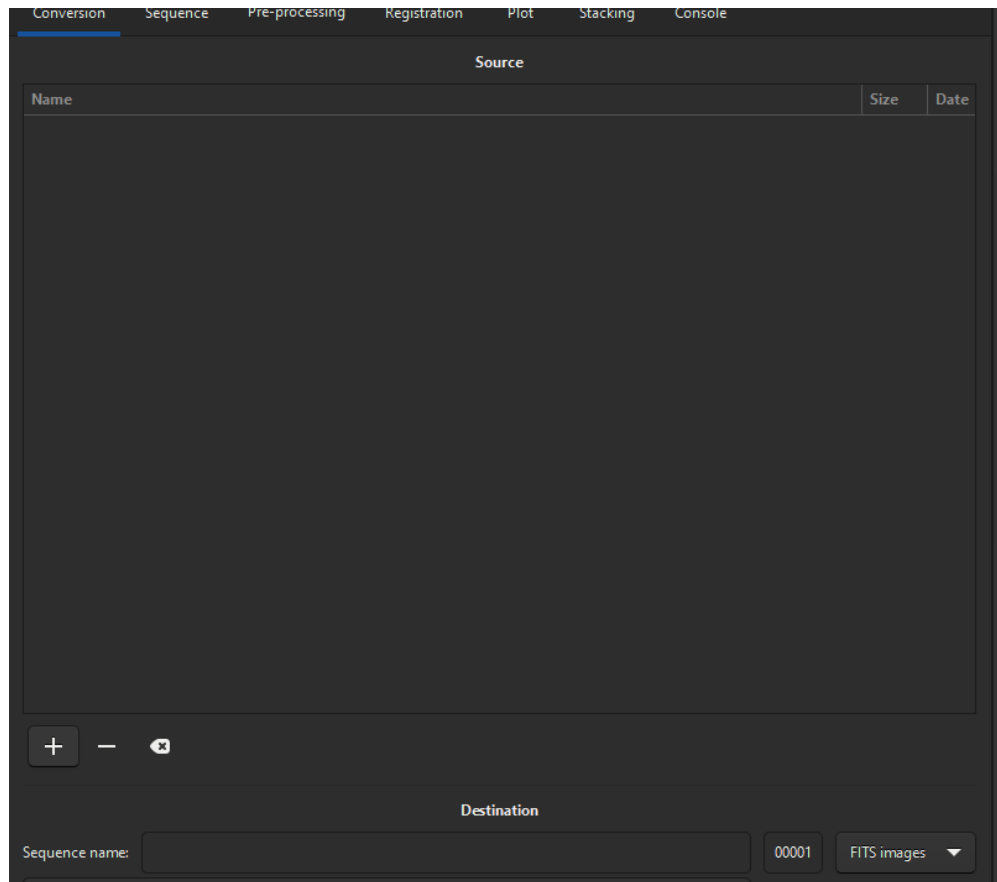


- 3. spustenie skriptu spracuje dáta a vyrobí v nastavenom adresári result.fit
- 4. môžete cez Open -> načítať result.fit

MANUÁLNY STACKING

Manuálny stacking

- 1. Nastavenie pracovného adresára
- 2. Nasleduje pridanie dát “+” ikona



Manuálny stacking

- 3. Pridať názov sekvencie a ak sú dáta color tak zakliknúť debayer a spustiť convert

Conversion Sequence Pre-processing Registration Plot Stacking Console

Source

Name	Size	Date
M101_Light_B_180_secs_001.fits	12.1 MB	Wed May 11 02:42:58 2022
M101_Light_B_180_secs_002.fits	12.1 MB	Wed May 11 02:43:04 2022
M101_Light_B_180_secs_003.fits	12.1 MB	Wed May 11 02:43:13 2022
M101_Light_B_180_secs_004.fits	12.1 MB	Wed May 11 02:43:13 2022
M101_Light_B_180_secs_005.fits	12.1 MB	Wed May 11 02:43:27 2022
M101_Light_B_180_secs_006.fits	12.1 MB	Wed May 11 02:44:39 2022
M101_Light_B_180_secs_007.fits	12.1 MB	Wed May 11 02:55:18 2022
M101_Light_B_180_secs_008.fits	12.1 MB	Wed May 11 02:55:21 2022
M101_Light_B_180_secs_009.fits	12.1 MB	Wed May 11 02:55:21 2022
M101_Light_B_180_secs_010.fits	12.1 MB	Wed May 11 02:56:10 2022
M101_Light_B_600_secs_001.fits	12.1 MB	Wed May 11 02:43:23 2022
M101_Light_B_600_secs_002.fits	12.1 MB	Wed May 11 02:43:33 2022
M101_Light_B_600_secs_003.fits	12.1 MB	Wed May 11 02:43:41 2022
M101_Light_B_600_secs_004.fits	12.1 MB	Wed May 11 02:43:42 2022
M101_Light_B_600_secs_005.fits	12.1 MB	Wed May 11 02:43:52 2022
M101_Light_B_600_secs_006.fits	12.1 MB	Wed May 11 02:43:52 2022

+ - 16 files loaded

Destination

Sequence name: M101 00001 FITS images

Convert Symbolic Link Debayer

Supported file types: BMP images, PIC images (IRIS), PGM and PPM binary images, RAW images, FITS-CFA images, Films, SER sequences, TIFF images, JPG images, PNG images, HEIF images.

Manuálny stacking

- 5. Okno preprocessing – vyberte dark / flat

The screenshot shows the 'Pre-processing' window of a software application. The window has a dark theme and a top navigation bar with tabs: 'Conversion', 'Sequence', 'Pre-processing' (active), 'Registration', 'Plot', 'Stacking', and 'Console'. Below the tabs, a warning message reads: 'Dark, offset (bias) and flat files can only be a single FITS file.' The main area contains several control groups. The first group has three rows: 'Use offset' with a file path 'master-bias.fit', 'Use dark' with 'master-dark.fit', and 'Use flat' with 'master-flat.fit'. Each row has a checkbox on the left and a folder icon on the right. To the right of these rows are two checkboxes: 'Optimization' (unchecked) and 'Equalize CFA' (checked). Below these is a checked checkbox 'Auto evaluate normalisation value' with a numeric input field set to '5000'. At the bottom of this group is an unchecked checkbox 'Fix X-Trans AF artifact'. The second group is titled 'Cosmetic correction (using master-dark)' and contains a checked checkbox 'Enable Cosmectic Correction'. Below it are two checked checkboxes: 'Cold Sigma' and 'Hot Sigma', each with a numeric input field set to '3.000' and a 'CFA' checkbox. Below these are two 'Estimate' buttons and labels 'Cold: 0 px' and 'Hot: 0 px'. The third group is titled 'Output sequence' and contains an 'Output prefix' field with 'pp_' and a dropdown menu set to 'FITS images'. At the bottom left is a 'Start pre-processing' button and a 'Debayer before saving' checkbox.

Conversion Sequence **Pre-processing** Registration Plot Stacking Console

Dark, offset (bias) and flat files can only be a single FITS file.

Use offset master-bias.fit

Use dark master-dark.fit Optimization

Use flat master-flat.fit Equalize CFA

Auto evaluate normalisation value 5000

Fix X-Trans AF artifact

Cosmetic correction (using master-dark)

Enable Cosmectic Correction

Cold Sigma: 3.000 Hot Sigma: 3.000 CFA

Cold: 0 px Hot: 0 px

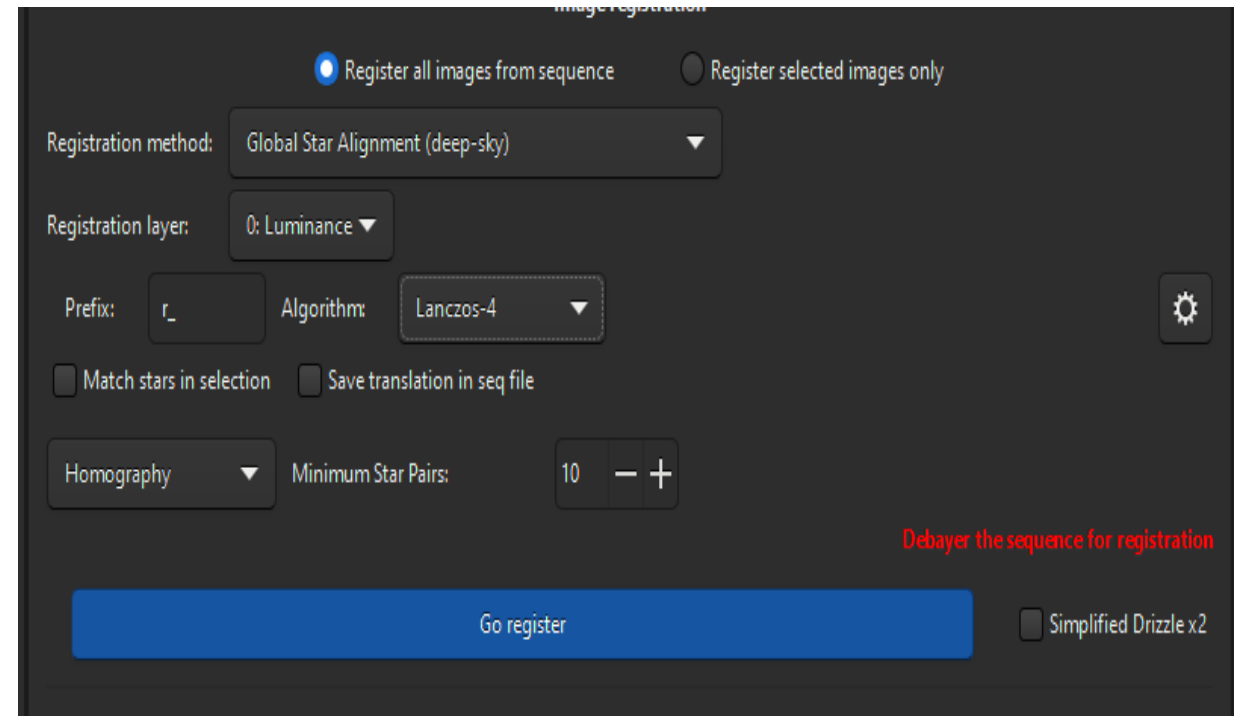
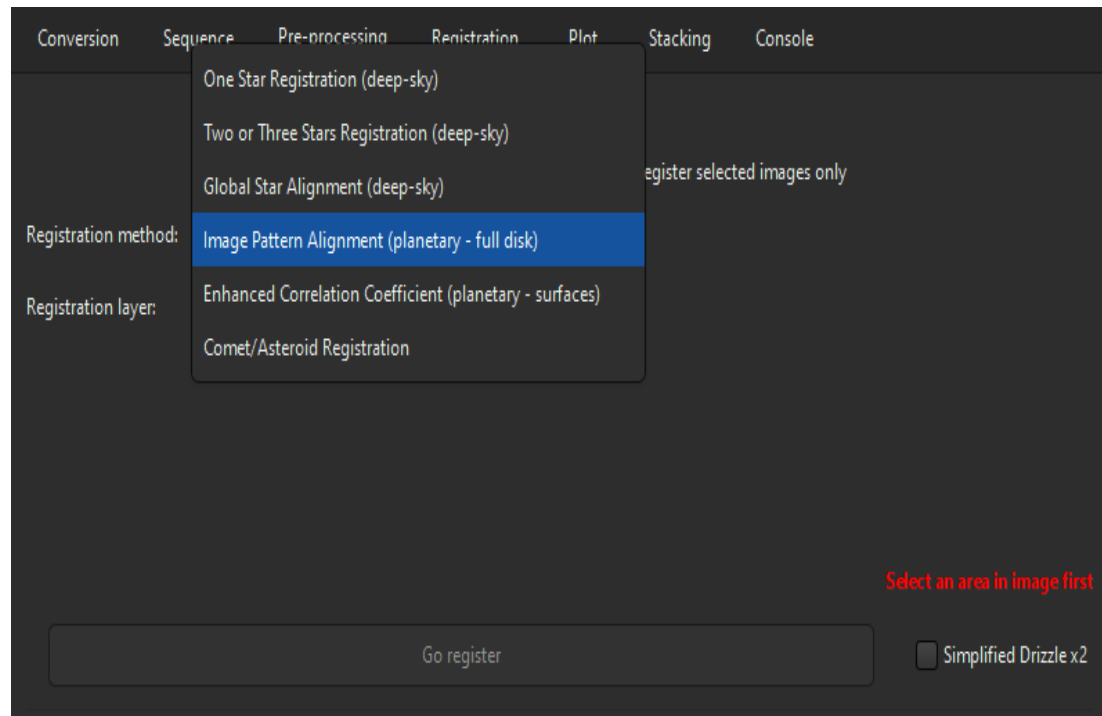
Output sequence

Output prefix: pp_ ▼

Debayer before saving

Manuálny stacking

- 6. Okno Registration – vyberte podľa typu dát – v prípade deep-sky = Global Star Alignn.



Manuálny stacking

- 7. Okno Stacking – vyberte metódu a Start stacking

Conversion Sequence Pre-processing Registration Plot **Stacking** Console

Sequence stacking

Methods: Average stacking with rejection

Normalisation: Additive with scaling Recompute Output Normalisation

Rejection: MAD clipping Weighted

Sigma low: 3.000 — +

Sigma high: 3.000 — +

Stacking 16 images of the 16 of the sequence

all +

Save in: r_M101_stacked.fit Overwrite

Start stacking

Manuálny stacking

- 8. Zložený obrázok bude automaticky načítaný a uložený

```
10:20:20: With the current memory and thread (8) limits, up to 8 thread(s) can be used for sequence
normalization
10:20:20: Reading FITS: file r_M101_00007.fit, 1 layer(s), 2750x2200 pixels
10:20:20: Reading FITS: file r_M101_00005.fit, 1 layer(s), 2750x2200 pixels
10:20:20: Reading FITS: file r_M101_00011.fit, 1 layer(s), 2750x2200 pixels
10:20:20: Reading FITS: file r_M101_00010.fit, 1 layer(s), 2750x2200 pixels
10:20:20: Reading FITS: file r_M101_00009.fit, 1 layer(s), 2750x2200 pixels
10:20:20: Reading FITS: file r_M101_00008.fit, 1 layer(s), 2750x2200 pixels
10:20:20: Reading FITS: file r_M101_00001.fit, 1 layer(s), 2750x2200 pixels
10:20:20: Reading FITS: file r_M101_00012.fit, 1 layer(s), 2750x2200 pixels
10:20:20: Reading FITS: file r_M101_00003.fit, 1 layer(s), 2750x2200 pixels
10:20:21: Reading FITS: file r_M101_00013.fit, 1 layer(s), 2750x2200 pixels
10:20:21: Reading FITS: file r_M101_00015.fit, 1 layer(s), 2750x2200 pixels
10:20:21: Reading FITS: file r_M101_00014.fit, 1 layer(s), 2750x2200 pixels
10:20:21: Reading FITS: file r_M101_00006.fit, 1 layer(s), 2750x2200 pixels
10:20:21: Reading FITS: file r_M101_00002.fit, 1 layer(s), 2750x2200 pixels
10:20:21: Reading FITS: file r_M101_00016.fit, 1 layer(s), 2750x2200 pixels
10:20:21: Reading FITS: file r_M101_00004.fit, 1 layer(s), 2750x2200 pixels
10:20:21: Using 9208 MB memory maximum for stacking
10:20:21: We have 8 parallel blocks of size 275 (+0) for stacking.
10:20:21: Computing weights...
10:20:21: Starting stacking...
```

command line

Type "help" for the list of supported commands

Rejection stacking in progress...

ZÁKLADNÁ ÚPRAVA OBRÁZKU

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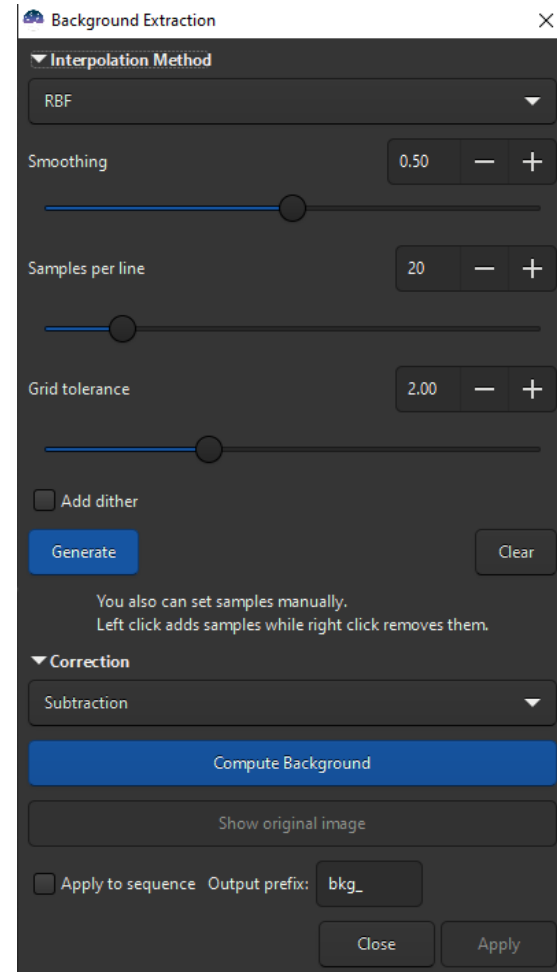
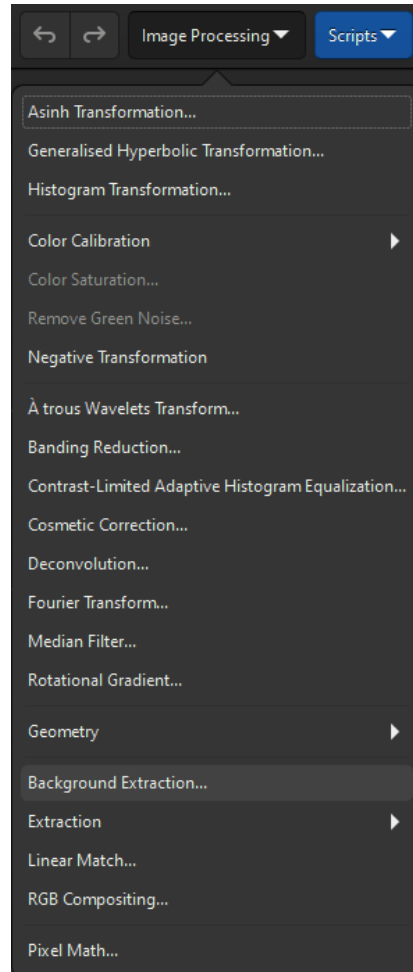
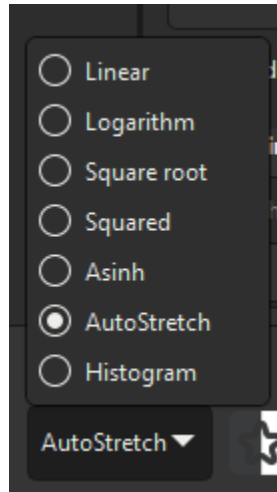
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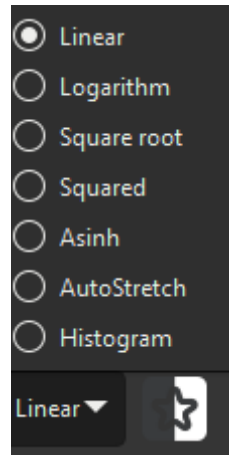
Postup

- 1. Autostretch
- 2. Background extraction + Generate + Compute Background

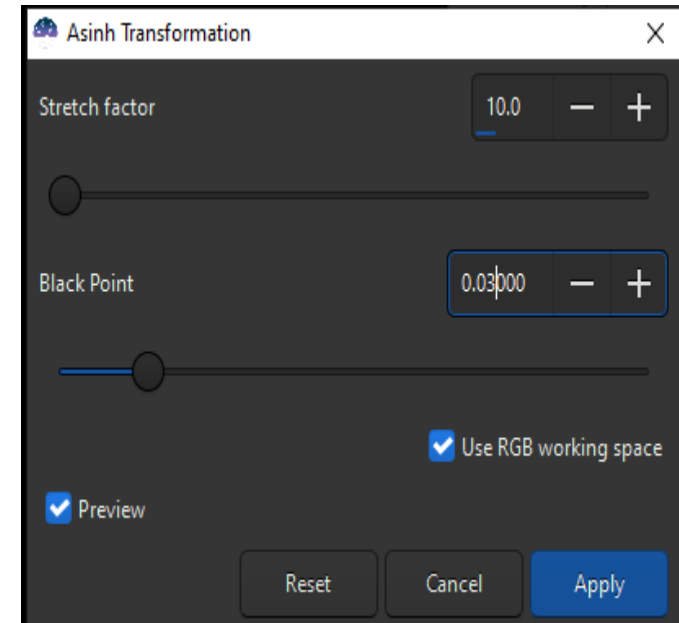
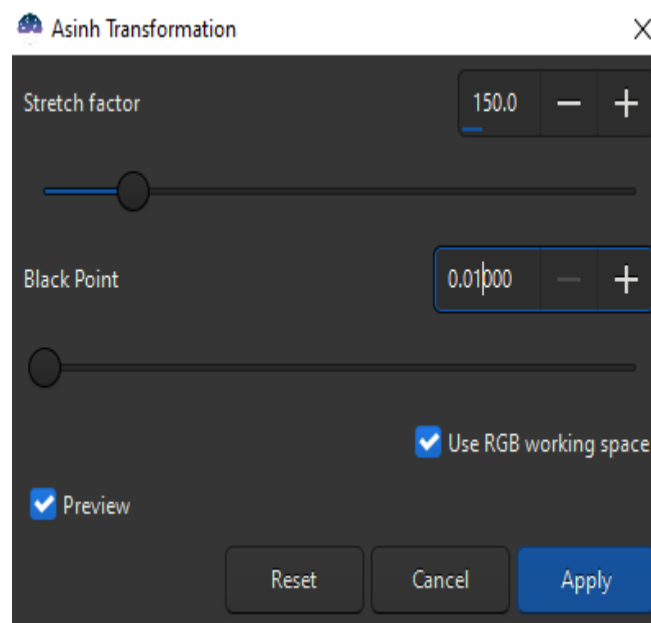


Postup

- 3. Vypnúť autostretch na Linear

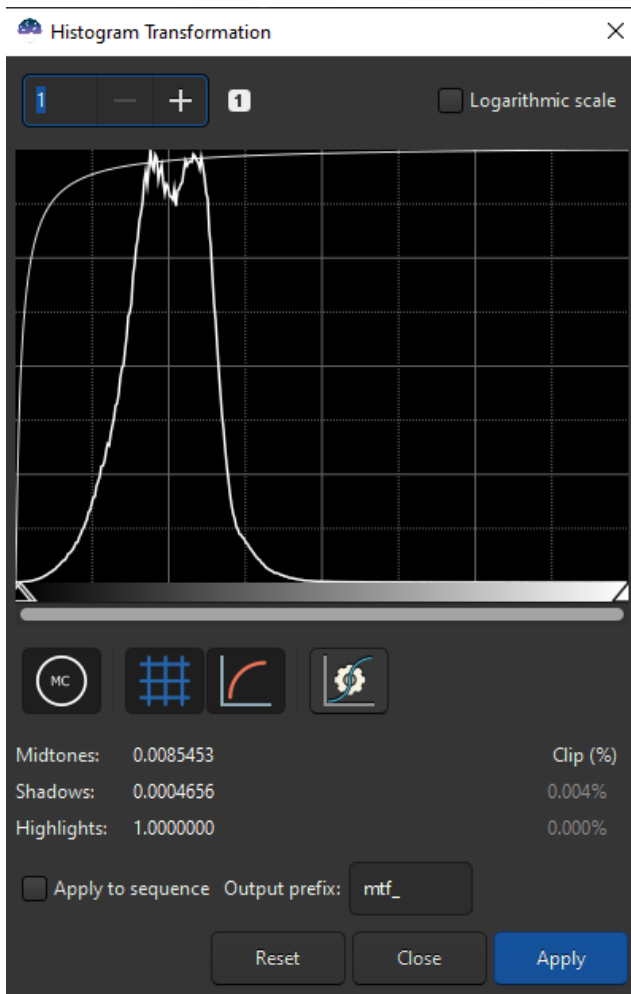


- 4. Asinh Transformation 2x iné hodnoty (nemusí)

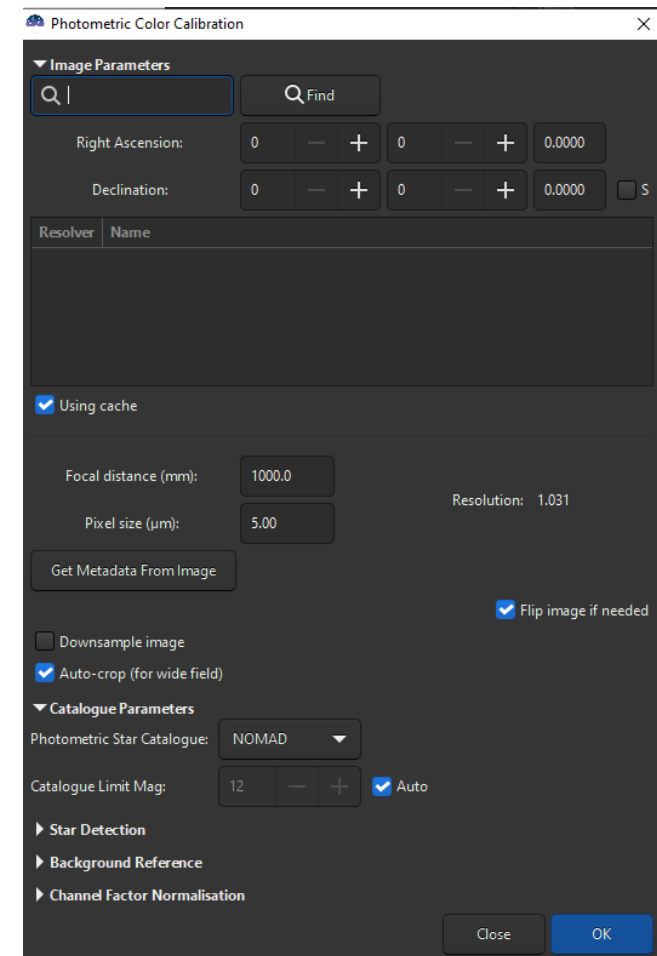
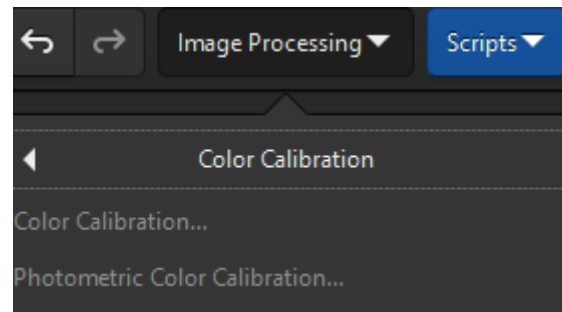


Postup

- 5. Histogram (autostretch)

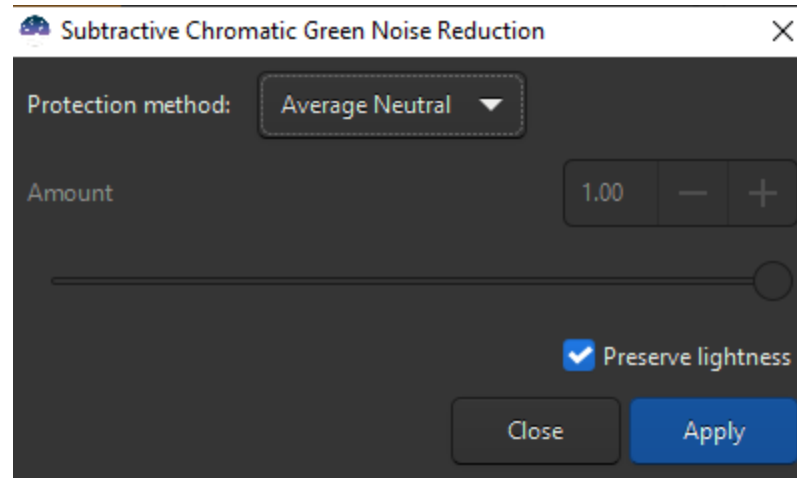
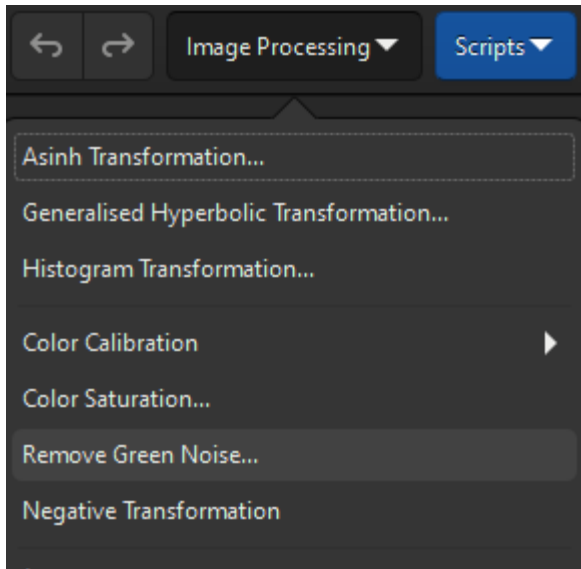


- 6. Color calibration (vyhledat objekt)



Postup

- 7. Odstránenie zostatkovej zelenej farby (ak je potrebné)



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