

Processing Planets

July 11, 2024

Prepping a Working Directory

1. Create a directory, one for each planet: Jupiter, Saturn and Mars.
2. Move the .SER sample files into that directory to keep down the clutter, as Siril will create files in the same directory as the original .SER file.
 - a. Jupiter: 2022-10-23-0244_5-L.ser
 - b. Saturn: 2022-10-05-0312_4-L.ser
 - c. Mars: 2020-10-06-0356_9-R.ser

Stacking with Siril

1. Start Siril
2. Change Home Directory to a “Working Directory” (above)
3. In the **Conversion** tab, hit + to add your .SER file to the sequence
4. Type in the name for your sequence, Choose “SER sequence”, check Debayer, and then hit **Convert**
5. Click on the **Registration** tab. In the image area, select an area around the planet—be sure to include any moons!
6. Choose one of the 2 planetary methods (“Image Pattern Alignment” seems more precise). Hit **Go Register**
7. In the Console, in the Registration run, it should tell you what the best quality frame is...write that down for use in the next step.
8. In the **Sequence** tab, **Open Frame List**, then find the frame number you just copied down, **select it** and then check the **Reference image** box on the top of the window. Keep the Frame List open as you might want to check how good/bad the frames are when Stacking.
9. You can check on the quality of your frames in the **Plot** tab.
10. Click on the **Stacking** tab. Choose one of the stacking methods (Sum Stacking is fine).
11. Under Image Rejection, choose quality and then adjust which percentage of the best you'd like to work with. Typically, 10-20% is plenty.
12. Press Start Stacking and watch the fun!

Enhancement & Sharpening with Siril

1. Select the planet as you did before, then, Right-click and at the bottom in the RGB align menu, choose **Image pattern alignment (planetary/deep-sky)**. This will color-align the image before you start sharpening.
2. Under **Image Processing** (at the top), choose **A Trous Wavelets Transform...**
3. Press the **Execute** button to set the number of wavelet levels (5 or 6 is fine)
4. Start on Layer 1
5. Adjust the slider (or +/-) (or number) until you start to see noise or pixelation.
6. Back off of that slider until it no longer exists

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7. Move to Layer 2 and repeat!

Links and Resources

1. SER Player
 - a. All: <https://github.com/cgarry/ser-player/releases/tag/v1.7.2>
 - b. Linux update (1.7.3): <https://appimage.github.io/ser-player/>
2. GIMP (<https://gimp.org>)
3. Siril (<https://siril.org>)
4. WinJuPos (<https://jupos.org>)
5. AutoStakkert! (<https://www.autostakkert.com>)
6. AutoStakkert! Guides (including link to S&T article):
<https://www.autostakkert.com/wp/guides/>
7. AutoStakkert! 2 Article in *Sky & Telescope*:
[https://www.astrokraai.nl/software/Sky%20&%20Telescope%20-%20September%202016%20\[68%20-%2072\].pdf](https://www.astrokraai.nl/software/Sky%20&%20Telescope%20-%20September%202016%20[68%20-%2072].pdf)
8. Lowbrows AP Software Resource Page:
<https://lowbrows.club/astrophotography-software-resources>
9. Deep-Sky Imaging Primer, 3rd Edition. Charles Bracken.
<https://digitalstars.wordpress.com/primer/>
10. Ubuntu Budgie (<https://ubuntubudgie.org>)