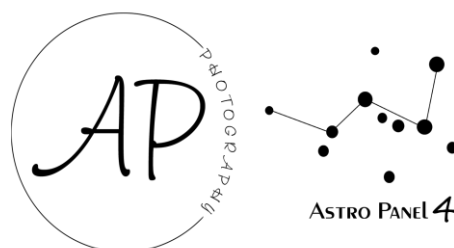


# How to use Astro Panel" 4.0

English



Angelo Perrone



[astropanel.it](http://astropanel.it) - [angeloperrone.it](http://angeloperrone.it)

# Index

*Pag. 3 - Introduction*

*Pag. 4 – How to Install?*

*Pag. 8 – The Plug-in*

*Pag. 10 – The PRO Section*

*Pag. 13 – The ASTRO Section*

*Pag. 19 – The TOOLS – MASKS Section*

*Pag. 21 – The Luminosity Masks*

*Pag. 24 – The Color Masks*

*Pag. 26 – The FUSION Section*

*Pag. 32 – Tutorial Merge (Silk, Focus Stacking, HDR e Night HDR)*

*Pag. 34 – Tutorial Startrail*

*Pag. 35 – Tutorial Sky Stack – Sky Stack HDR*

*Pag. 38 – Tutorial: How to edit Milky way?*

*Pag. 48 – Tutorial: How to edit Deep Sky Images?*



# Introduction

Welcome to the guide for the Adobe Photoshop CC plug-in **"Astro Panel"** version 4.0. This plug-in has advanced features to drastically reduce the workflow of the amateur photographer, the professional photographer and the videomaker in a matter of minutes. The workflow illustrated in this guide together with the description of the functions will help you to reach high quality digital processing. The functions integrated inside the panel will guide the user during the digital processing process because they are arranged in chronological order to instruct him in a correct digital post-production method. Astro Panel now integrates the advanced features of Fusion.

**"Astro Panel"** is entirely in HTML5 and was created in collaboration with qualified expert personnel to maximize the experience of use and make the integrated functions fantastic.

**"Astro Panel"** is not compatible with the versions of Photoshop CS, but only from the CC 2015 version up to the current CC 2020. The compatibility with the CC version of Photoshop is used to guarantee excellent performance and continuous updates. To take full advantage of the plug-in's features, I recommend you always update Adobe Photoshop CC to the latest version available.

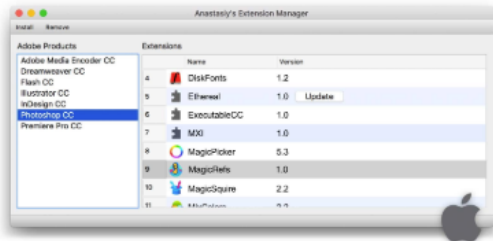
Let's move on to installing the plug-in in our PC / MAC.

## How to Install?



To install the Panel on your PC (Windows or MAC) we need to download the **Anastasiy Extension Manager** from the website <https://install.anastasiy.com> and perform these simple steps:

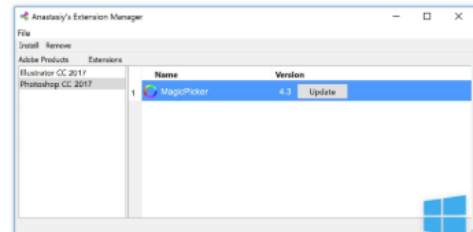
- Select your **operating system** from the page;



**Download v3.0 for Mac OS X 10.8+**

*NEW: Now supports Adobe XD plugins; Improved compatibility with most recent Adobe Creative Cloud; Fixed crash when no Photoshop CC was installed prior to Extension Manager run; Various UI fixes and improvements;*

version history



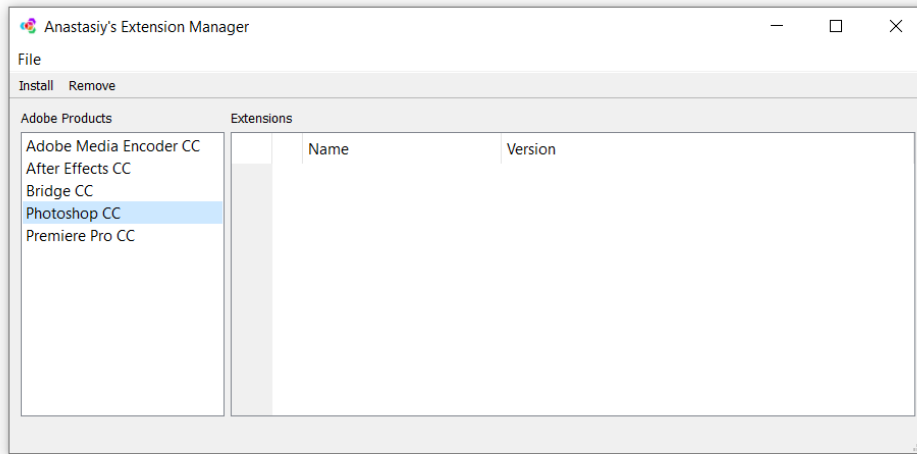
**Download v3.0 for Windows 7+**

*NEW: Now supports Adobe XD plugins; Improved compatibility with most recent Adobe Creative Cloud; Fixed crash when no Photoshop CC was installed prior to Extension Manager run; Various UI fixes and improvements;*

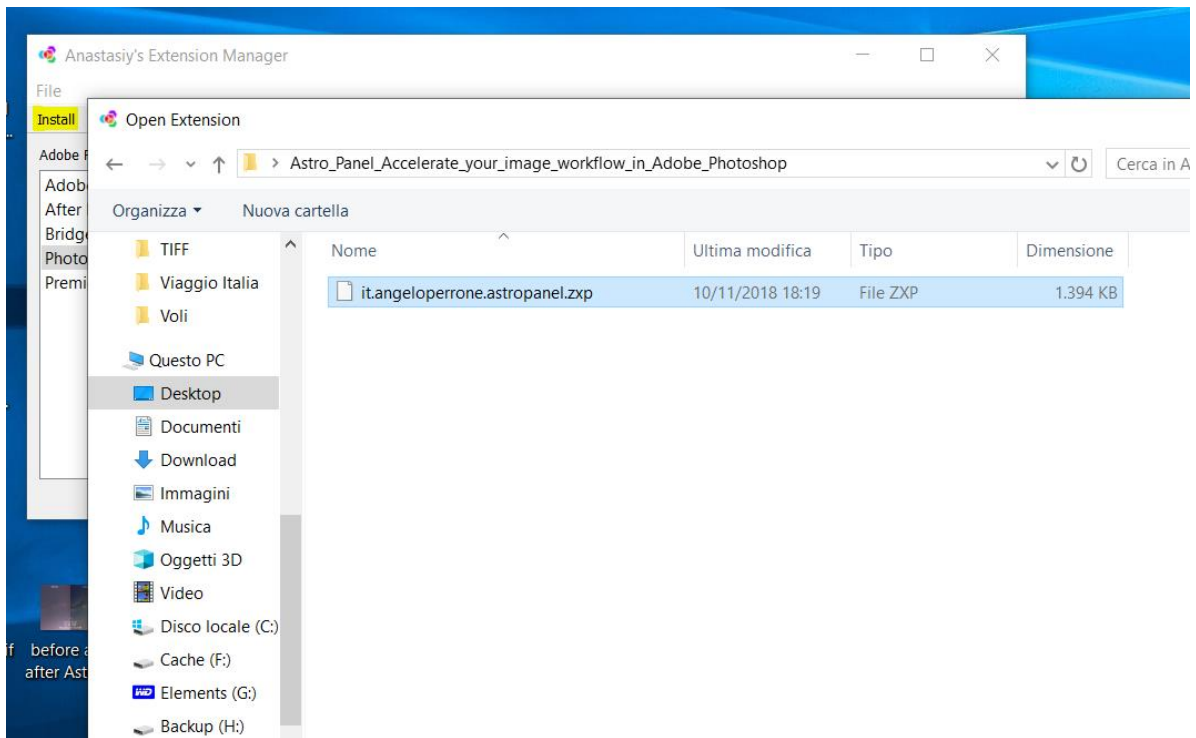
version history

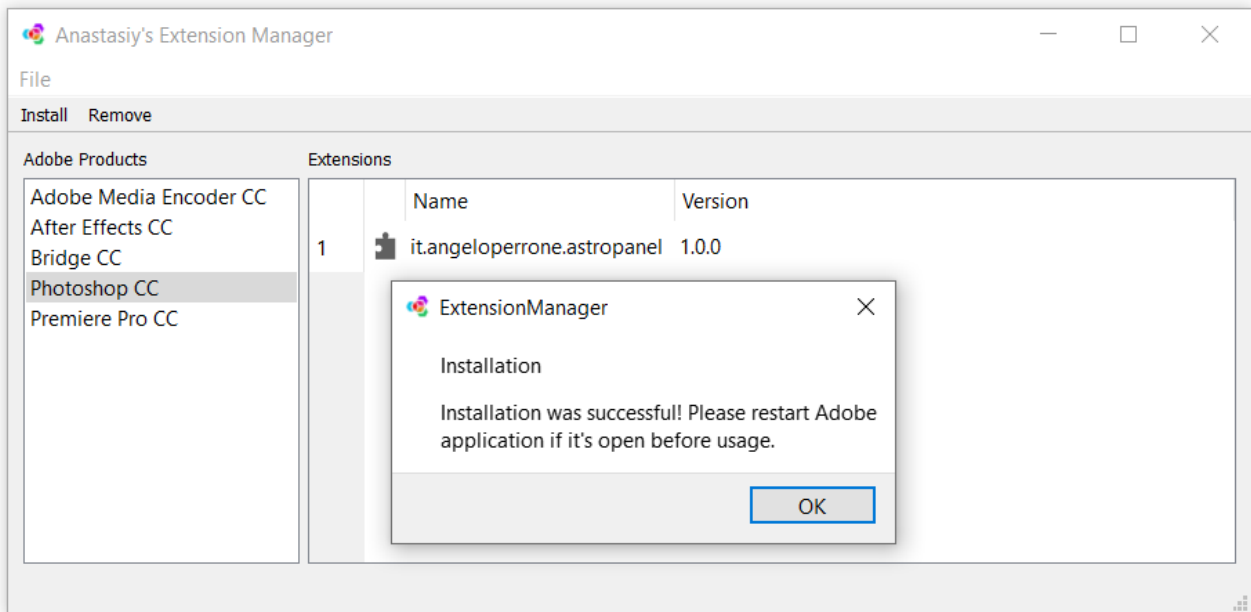
- save the Zip **ExtensionManager\_win.zip** in a folder;
- **Extract** the files into a folder;
- run the **ExtensionManager** file contained in the compressed package;
- from the list of Adobe applications select **Photoshop CC** and then **INSTALL**;





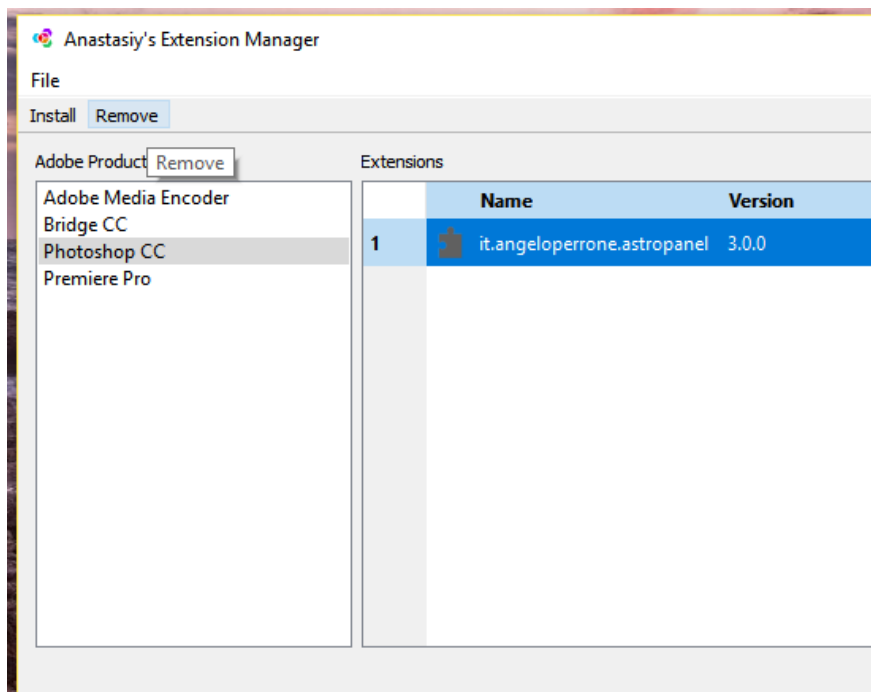
- extract the panel files in a folder on your PC, select  
*“it.angeloperrone.astropanel.zxp”*





Once the package is installed on your PC, from Adobe Photoshop CC open the menu "Window" -> "Extensions" and click on "Astro Panel 4".

If you are upgrading from version 3.2 to 4.0, you will have to **uninstall** the old version and install the new one again using the **Anastasiy extension manager** using the "Remove" command.



Here is the video installation tutorial:

<https://www.youtube.com/watch?v=426V8ULLbPA&t=169s>

If you have problems installing Astro Panel try to perform a manual installation.



Open the file you downloaded from the Astro Panel website and copy only the folder named **it.angeloperrone.astropanel** contained in the **"Manual Installation"** folder in one of these folders, depending on the operating system:

Win: C: Program Files (x86) Common Files CEP extensions

Mac: / Library / Application Support / Adobe / CEP / extensions

After this, open Adobe Photoshop CC and verify that the panel is present on the Window -> Extensions.



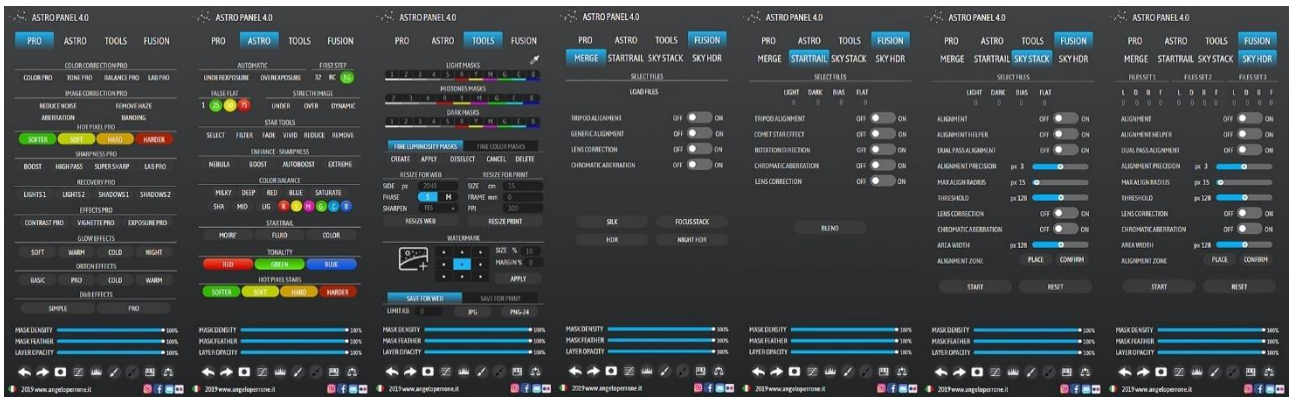


# The Plug-in

With the latest update, something new was introduced regarding the experience of using Astropanel. Once logged in we will find four main sections with the relative dedicated functions:

- The "**PRO**" section dedicated to post-production of images has been completely renewed. Now the functions integrated in this section adapt to any type of photography. You'll be able to process white balance and color tone with a click, remove digital noise and annoying hot pixels, increase image sharpness, recover shadows and lights, and manage many effects like Orton and Glow;
- The "**ASTRO**" section is dedicated to the post-production of astronomical images. The Astro section has been redesigned with the addition of new features and simplified to accelerate the workflow of astronomical images (milky way, startrail and deep sky);
- The "**TOOLS-MASKS**" section integrates advanced functions dedicated to the management of luminosity masks and color masks. Now it also integrates the advanced selection of masks in real time through the dropper positioned at the top right, the tab for resizing images for the web, for saving files and for printing;
- The "**FUSION**" section is the biggest news of the version 4.0 update. Now Fusion is integrated into Astro Panel and you can add any image.





The image above shows all the sections of the update to version 4.0.

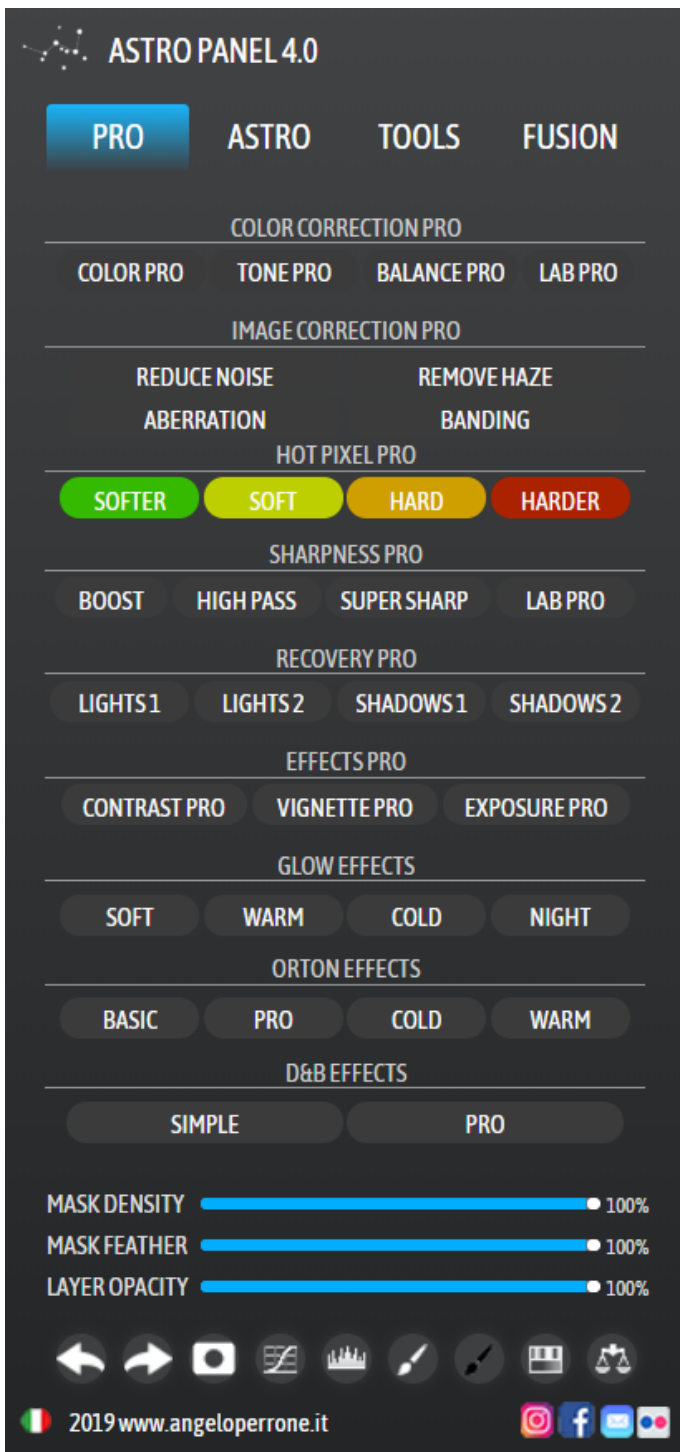


Let's illustrate the various functions of "Astro Panel" section by section.



# The PRO Section

The PRO section has been completely revised to contain all the new Astro Panel functions. From this section we can modify any type of photography, from astrophotography to the daytime landscape.



We describe the commands of this section one by one.

COLOR CORRECTION PRO, are controls for color correction, white balance and color saturation, precisely:

- COLOR PRO, adjusts the automatic color corrections of the image;
- TONE PRO, adjusts automatic corrections of image tones;
- BALANCE PRO, find the average neutral color of an image and adjust the values of the range (half tones) according to this neutral color;
- LAB PRO, increases the vividness of colors in Color Lab.

The IMAGE CORRECTION PRO commands are for correcting artefacts and defects that affect all digital images:

- REDUCE NOISE: helps the user to reduce the chromatic noise present in the photo without losing details and maintaining the nuclei of the nebulae and the brightness of the stars;

- **REMOVE HAZE:** removes the haze present in the photo and can be adjusted through the opacity of the layer;

- **ABERRATION:** analyses chromatic aberrations and with the brush the user can remove the aberrations present in the image;

- **BANDING:** banding or scaling is the phenomenon in which the shades of colours in an image are rendered as bands of colours. This function easily removes these defects.

**HOT PIXEL PRO** is a set of functions to automatically remove "Hot Pixels": those annoying white or coloured pixels that typically appear when taking pictures in low light and with long exposure times. Click on one of the coloured buttons to increase the intensity of the function.

**SHARPNESS PRO** is a group of semi-automatic functions that increase image sharpness. Let's analyze the commands:

- **BOOST:** this very useful function in daytime images increases sharpness by using brightness masks (highlights and shadows);
- The **HIGH PASS** filter works on the contrast of the edges of the objects and you can adjust the ideal radius during post-production. I advise you to use it with caution in order not to exaggerate with the sharpness;
- **SUPER SHARP** uses the "Advanced Sharpness" filter adjustable during post-production and exercises greater control over the sharpness of the images;
- **LAB PRO** increases the sharpness of the image on the "Luminosity" channel working in Color LAB.

**RECOVERY PRO** is a set of automatic functions to recover lights and shadows in a single click. Click on 1 or 2 to choose the ideal intensity for your photo.

**EFFECTS PRO**, as the word itself says, adds effects to our images to improve the final result or give that touch that is missing. We find:

- **CONTRAST PRO** selectively increases micro-contrast in the photo;
- **VIGNETTE PRO** adds vignetting and it is adjustable at will;
- **EXPOSURE PRO** adjusts the final exposure of the photo and it is useful before publication on the Web or the printing phase.

**GLOW EFFECTS**, contains four adjustments to create the final Glow effect on your photo. You can choose between:

- **SOFT**: to create a light Glow effect;
- **WARM**: to create a Glow effect suitable for images with warm color temperature and preferably taken during the day;
- **COLD**: to create a Glow effect suitable for images with cold color temperature and taken preferably after sunset or at night;
- **NIGHT**: to create a Glow effect suitable for night images.

**ORTON EFFECTS** contains four adjustments to create the final Orton effect on your photo. You can choose between:

- **BASIC**: to create a light Orton effect;
- **PRO**: creates a professional and adjustable Orton effect with curves;
- **WARM**: to create an Orton effect suitable for images with warm color temperature and taken preferably during the day;
- **COLD**: to create an Orton effect suitable for images with cold color temperature and taken preferably after sunset or at night;

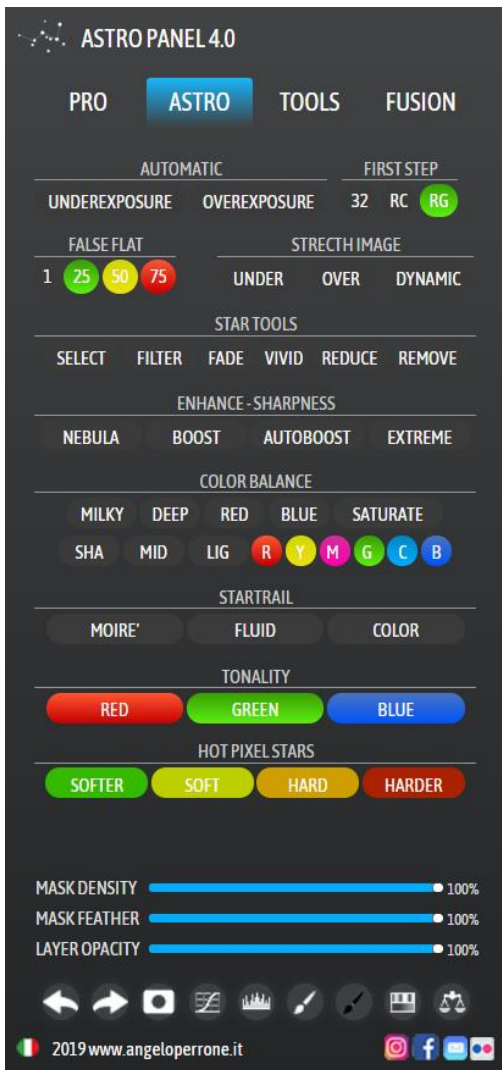
**D&B EFFECTS**, the Dodge and Burn, is a photographic technique entirely dedicated to light management. Through these functions you can "dodge and burn" your image. We have two different functions:

- **D&B - SIMPLE** gives us the possibility to intervene on the dodge and burn using a black / white brush to obtain the desired effect;
- **D&B PRO** automatically creates an aggressive dodge and burn working on the light masks and can be adjusted at the end.

# The ASTRO Section

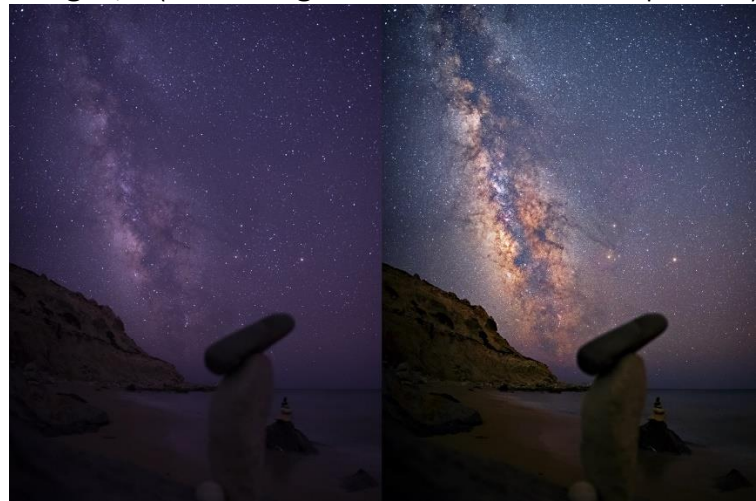
The Astro section has been completely revised and now contains many more features than the previous version.

We list all the functions in detail.



**AUTOMATIC PROCESS:** this group contains two automatic functions that transform your astronomical photo in just one click. Two functions are available:

- **UNDEREXPOSURE** - Automatic process Dark Images, (for underexposed or dark images);
- **OVEREXPOSURE** - Automatic process Bright Images, (for images with correct exposure).



*Automatic process example (Automatic process Dark Images).*

**FIRST STEP:** as its name suggests, this is the first group because it contains essential functions that the user should do when opening the image in Photoshop:

- **32 - Convert from 32 to 16 bit image (DSS):** sets the 32-bit 16-bit channel of the Autosave.tif file generated directly by the Deep Sky Stacker/Pixinsight software after the sum of the files tracked. Info in the graphic and video tutorial;



- **RC - Reset colors Astrophotography:** resets the tones and colors of the photo making them automated;
- **RG - Remove Green color Cast:** removes the green cast contained in astronomical photos automatically and you can adjust the opacity to your liking.

**FALSE FLAT (REMOVE GRADIENT)**, the second group, automatically removes, in two steps, the "unpleasant" gradient that we find in our astronomical photos. There are 3 commands that differ from each other based on the amount of gradient we want to remove. We don't need external software to do this because it's all integrated into "Astro Panel".



*Example of False Flat 50% (press "1" and then the 50% button).*

**STRECHING IMAGE** is a group composed of two commands that serves to extrapolate the hidden signal of the Milky Way / Deep Sky contained in the photo; there are two methods of extrapolation based on the exposure of the photo (bright or dark image) **UNDER**, for underexposed images, and **OVER**, for overexposed images. Moreover, we have the **DYNAMIC** (Dynamic Stretch) mode, which amplifies the Milky Way signal or deep sky objects.

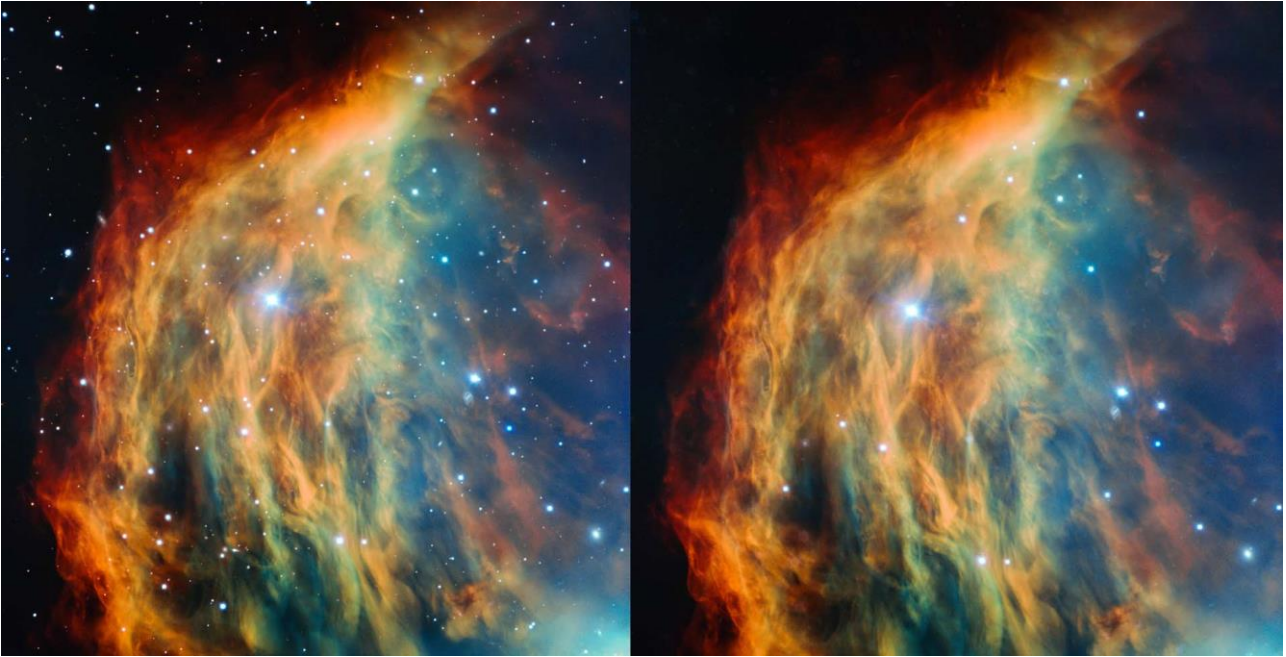


*Example of Dynamic Stretch*

**STAR TOOLS** are five functions, each with its own task, and all work on the stars. They are mostly used in Deep Sky images to highlight objects in the deep sky and turn off the brightness of the stars. Let's describe them:

- **SELECT - Star Mask** selects all the stars contained in the image. We can make a quick selection with the command and perfect the color, intensity or brightness of the stars;
- **FILTER - Star Filter**: with it, you can filter the stars contained in the image and in small percentage turn them off in order to emphasize the nebulae. You can use this function as many times as you need to filter as many stars as possible;
- **FADE - Feather Stars**: blurs the sharpest images to bring out the colors of the stars;
- **VIVID - Saturate Color Stars**: it increases the vividness and saturation of stars;
- **REDUCE - Reduce Stars Diameter**: it reduces the diameter and makes the stars in the image point-like;
- **REMOVE - Remove all Stars** eliminates all the stars from the image leaving all the nebulosity of the objects of the deep free sky.





*Example of Remove Stars (Stars have been partially removed to emphasize nebulosity).*

**ENHANCE-SHARPNESS** is a set of commands used in astrophotography. Let's analyze:

- **NEBULA - Enhance NEBULOSITY** amplifies the nebulosity of the Milky Way or deep sky objects, reducing the diameter of the stars;
- **BOOST - Precision Boost** allows to increase the sharpness of the photo in a controlled way. It is advisable to use the white brush on the black level mask to increase the effect of the chosen command;
- **AUTOBOOST - Automatic Precision Boost** increases the sharpness of the photo automatically;
- **EXTREME – Deconvolution**: is a technique used in astrophotography that serves to give a hyper-sharpness to our photos. Adjust the opacity of the layer to your liking.



*Example of combining "Nebula" and "Boost"*

**COLOR BALANCE** is a set of color management tools. We can adjust the color temperature on the fly and correct the chromatic aberrations around the stars:

- **MILKY - Selective Color Milky way:** selective color correction for images with the Milky Way;
- **DEEP - Selective Color Deep Sky:** selective color correction for Deep Sky images;
- **RED - Selective Color Red:** extract, using a brush, the red color contained in the image;
- **BLUE - Selective Color Blue:** extract, using a brush, the blue color contained in the image;
- **SATURATE - Saturate and Sharpen,** accentuates the saturation and sharpness of the Milky Way or of deep sky objects;

**TOOLS** is a set of quick access features:

- **SHA, MID, LIG** generate a brightness mask for lights, for midtones and for shadows of level 1. If we want to access higher levels and generate more precise masks we have to move to the other tab;
- **R, Y, M, G, C, B,** generate color masks useful for working selectively and precisely only on the selected colors.



*Example of color and detail correction in lights and shadows*



# The TOOLS Section

The Tools section has also been completely redesigned and now contains many more features than the previous version.

We list all the functions in detail. At the top we have **brightness masks** and **color masks**

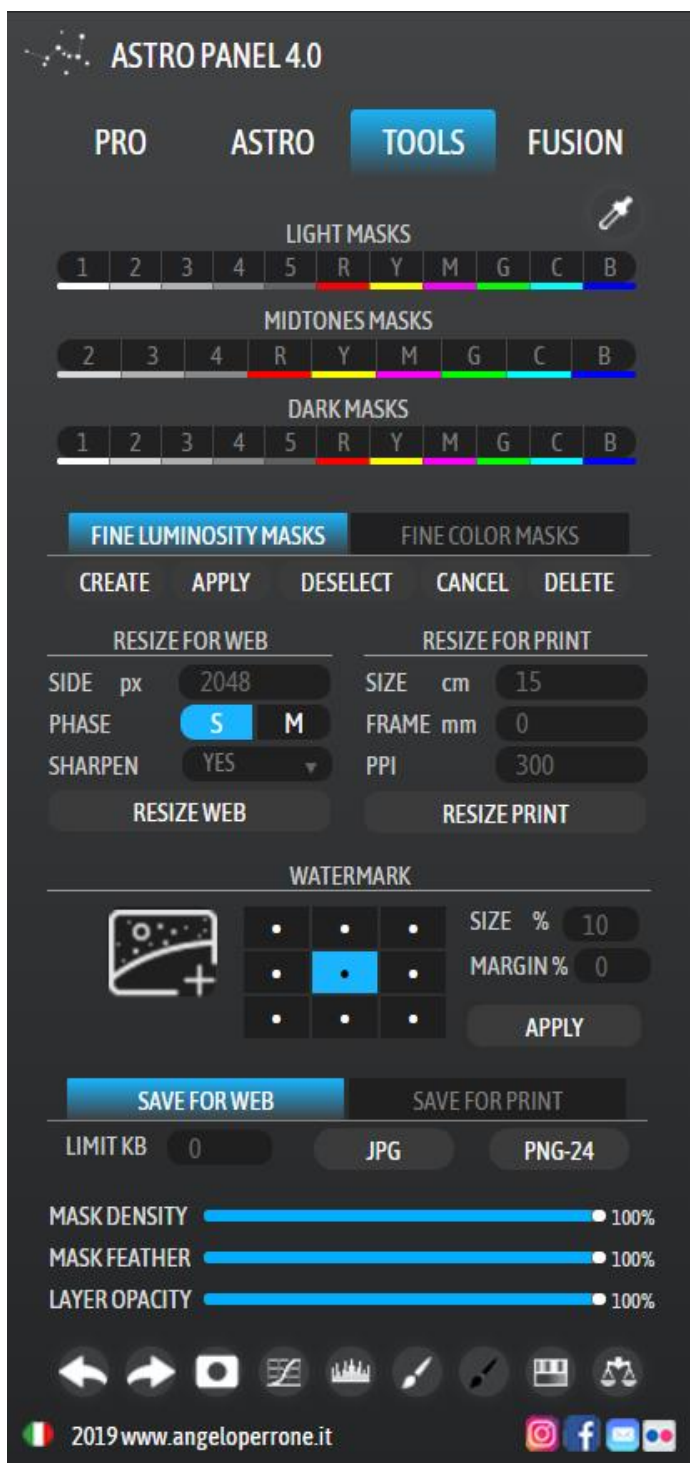
divided into **Lights**, **Midtones** and **Shadows**. At the top right we have the **eyedropper** that allows us to query any area of the image and in **real time** understand which brightness mask to use. In fact, one of the masks will light up in a blue color.

Below the masks, you will find some commands that will help you to easily identify where the selection works. We are talking about the group of functions "**Fine Luminosity Masks**" and "**Fine Color Masks**" which includes:

- **CREATE**: to create brightness masks;
- **APPLY**: to apply the changes to the image (single level);
- **DESELECT**: to delete the selection (CTRL + D);
- **CANCEL**: to eliminate the level;
- **DELETE**: to delete brightness masks.

While in the function group "**Fine Color Masks**" we find:

- **APPLY**: to apply the changes to the image (single level);
- **SELECT**: to select the screen mask;
- **DESELECT**: to delete the selection (CTRL + D);
- **DELETE**: to clear the level.



Another new feature of the new update is the ability to **resize images** as desired either for saving locally, for printing or for the web. In addition we also find a convenient function to add the **watermark** to our image before posting on social media.

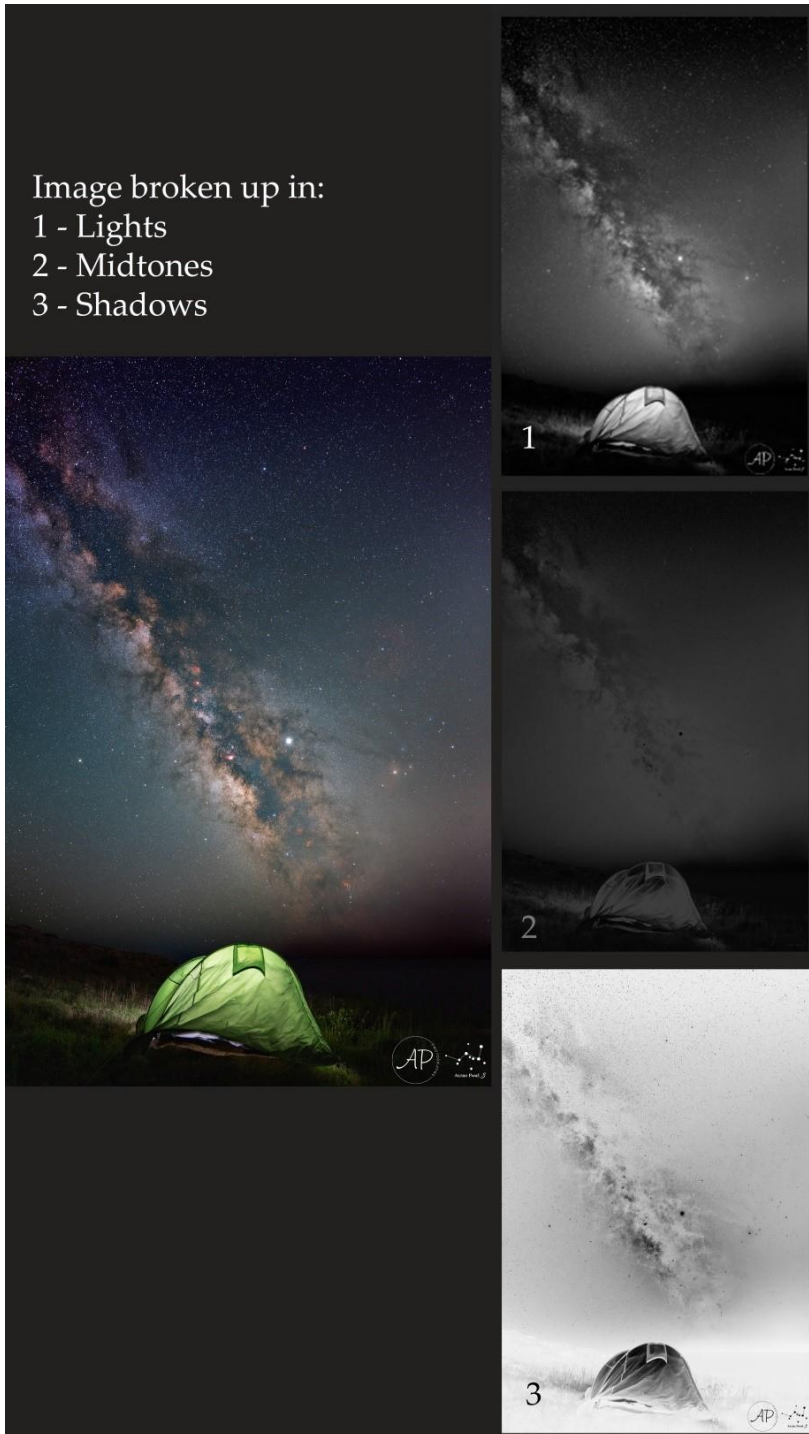


Other convenient features that immediately catch the eye are the quick adjustments. In fact we would no longer need to adjust the opacity of the layer, the nuance and density of the mask because we could do it directly from the panel below. Under

these adjustments, the quick tools like **Forward** and **Back**, the **Quick White Mask**, **Curve Level** and **Tonal Values**, **White Brush** and **Black Brush**, **Hue / Saturation** and **Color Balance** have been optimized compared to the previous version.

# Luminosity Masks: How to use?

In the "Tools" tab we find both brightness and color masks. Through the brightness



masks we can overcome the limit of the sensor of our DSLR/mirrorless camera and modify specific tones of the image at will by giving our interpretation to the photo.

Luminosity masks subdivide the image into Highlights, the lighter parts, Shadows, the dark parts, and Midtones, the intermediate tones.

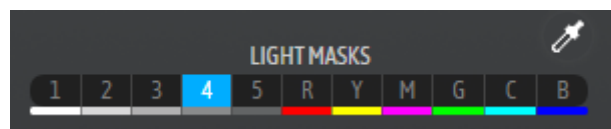
With the new update, you can select an area of the photo you are interested in using the eyedropper and automatically find the brightness mask we need to make the change.

Through these, we can intervene with curves and brushes, saturate some areas of the image or desaturate them and lots of other functions.

The tutorial below will give more information on how they work.



As we explained before, the dropper at the top right helps us to select in real time the area of the image we want to modify. Once the area to be modified has been selected, Astro Panel automatically identifies which brightness mask to use to proceed with the modification.

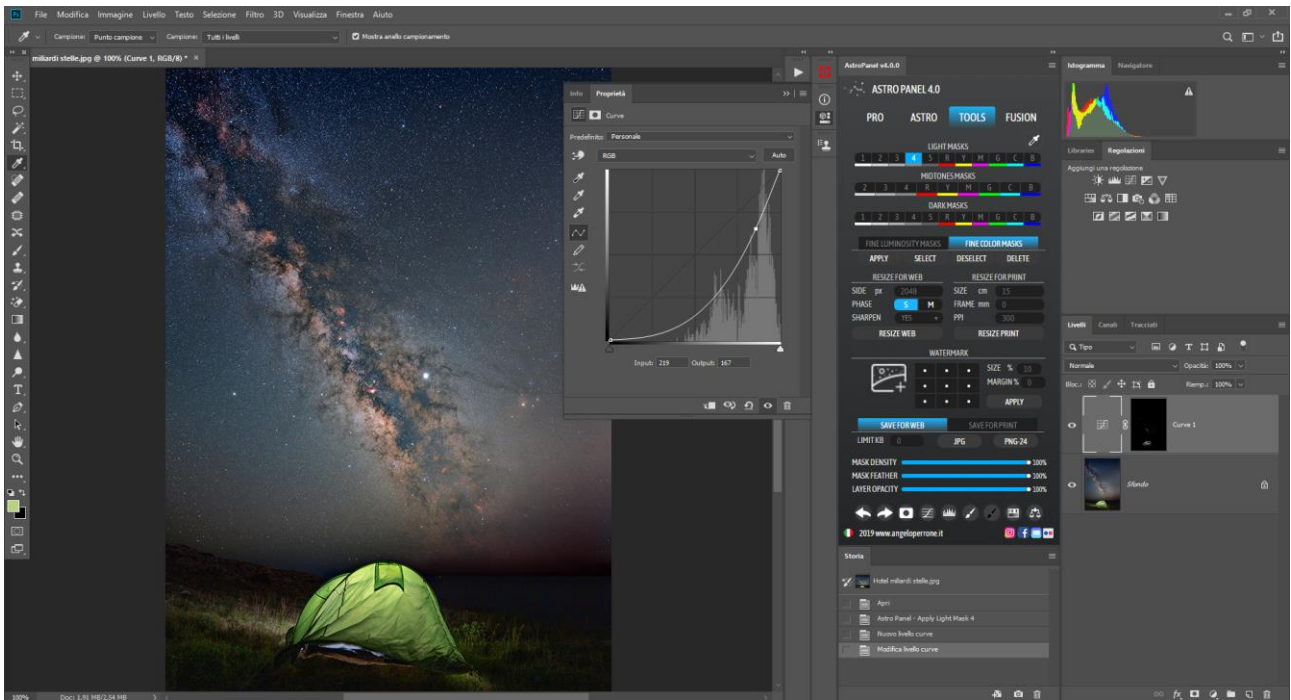


Click on the highlighted light blue mask to create the brightness mask.

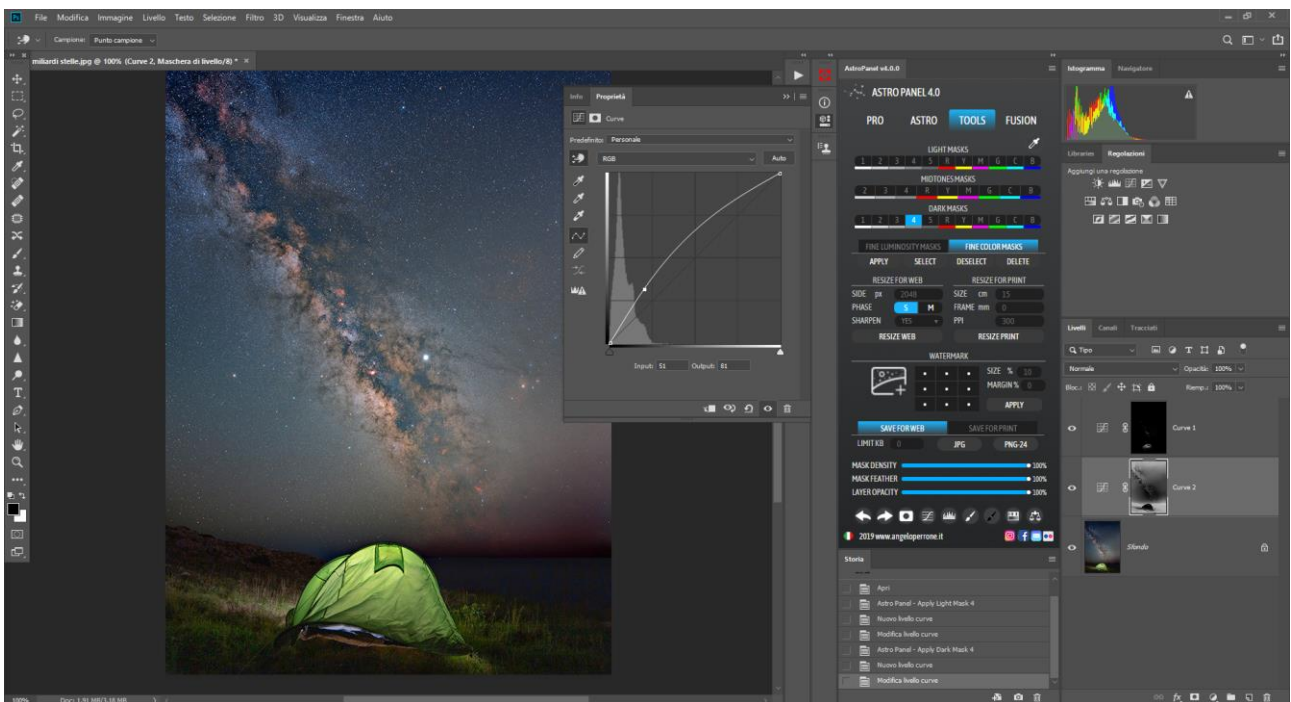
Then if you want to manage the brightness/exposure of a mask, click directly on the curves adjustment and with the little hand you can adjust the display as desired. This is one of many examples to take advantage of brightness masks. If you use a black brush you can also cancel the effect of the selected mask so that it only coincides on the desired image area.







As you can see we have corrected the light contained inside the tent recovering only that area thanks to the Curve level lowering the high lights. You can use these operations on any brightness mask even using Tonal Values. For example, you can open shadows or correct haze in the image by adjusting the Tonal Values of the midtones. You just have to experiment.



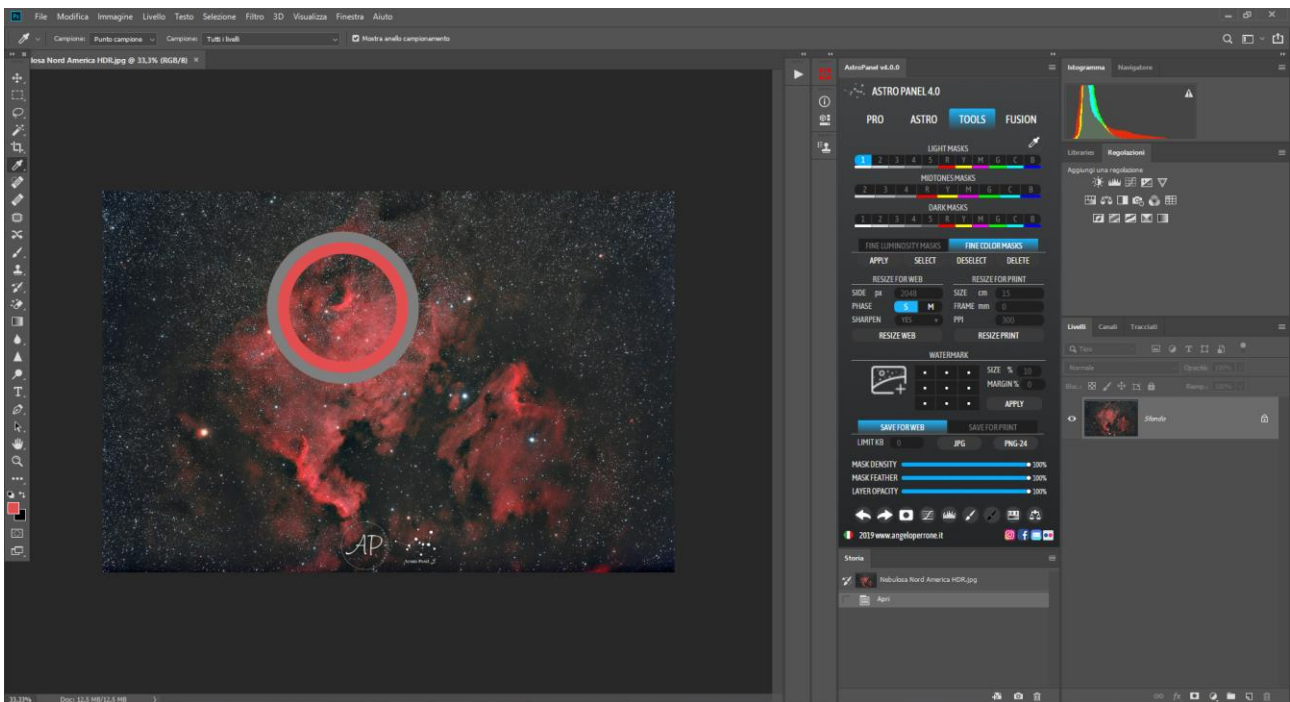


# Color Masks: How to use?

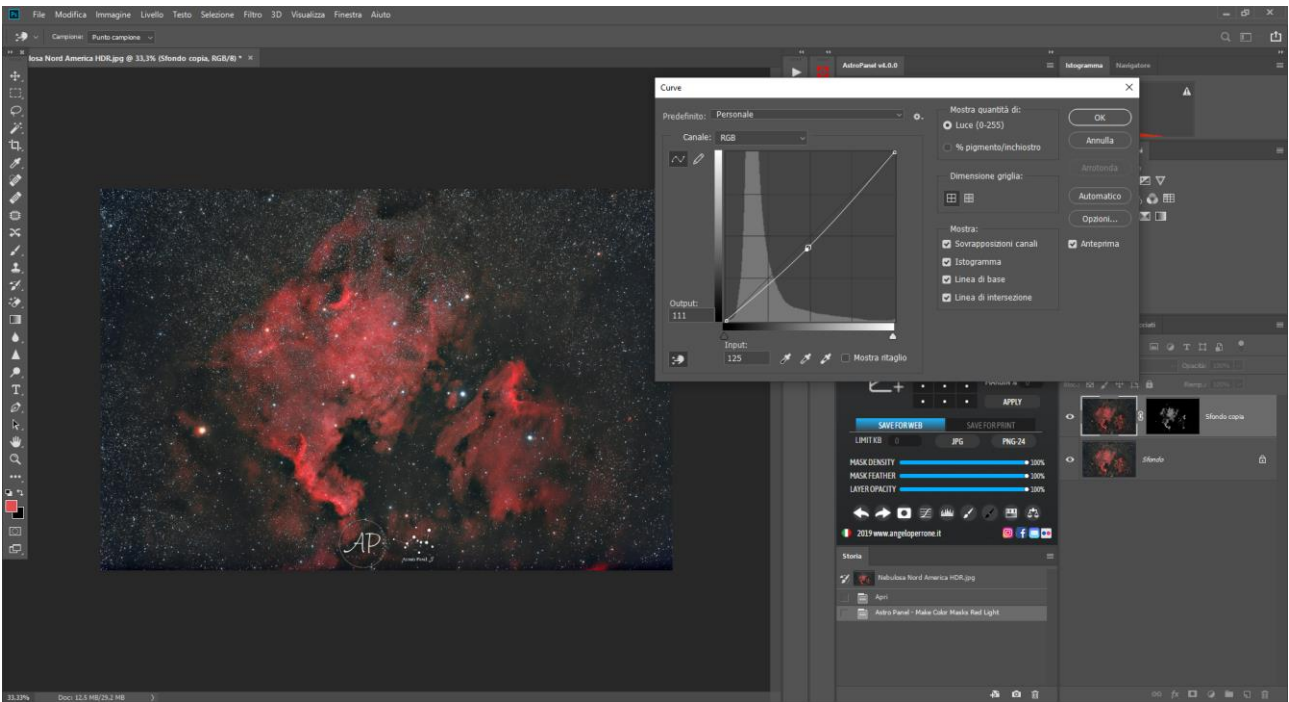
Not only Luminosity masks, in Astro Panel there are also color masks. Introduced with version 2.0, it is an exclusive of this plug-in. Through the color masks you will be able to select a specific color in an area of the image using light masks (lights, shadows and halftones).

Through the color masks you can not only make a very careful selection to manage the exposure, but you can saturate the colors, adjust the hue and the contrast.

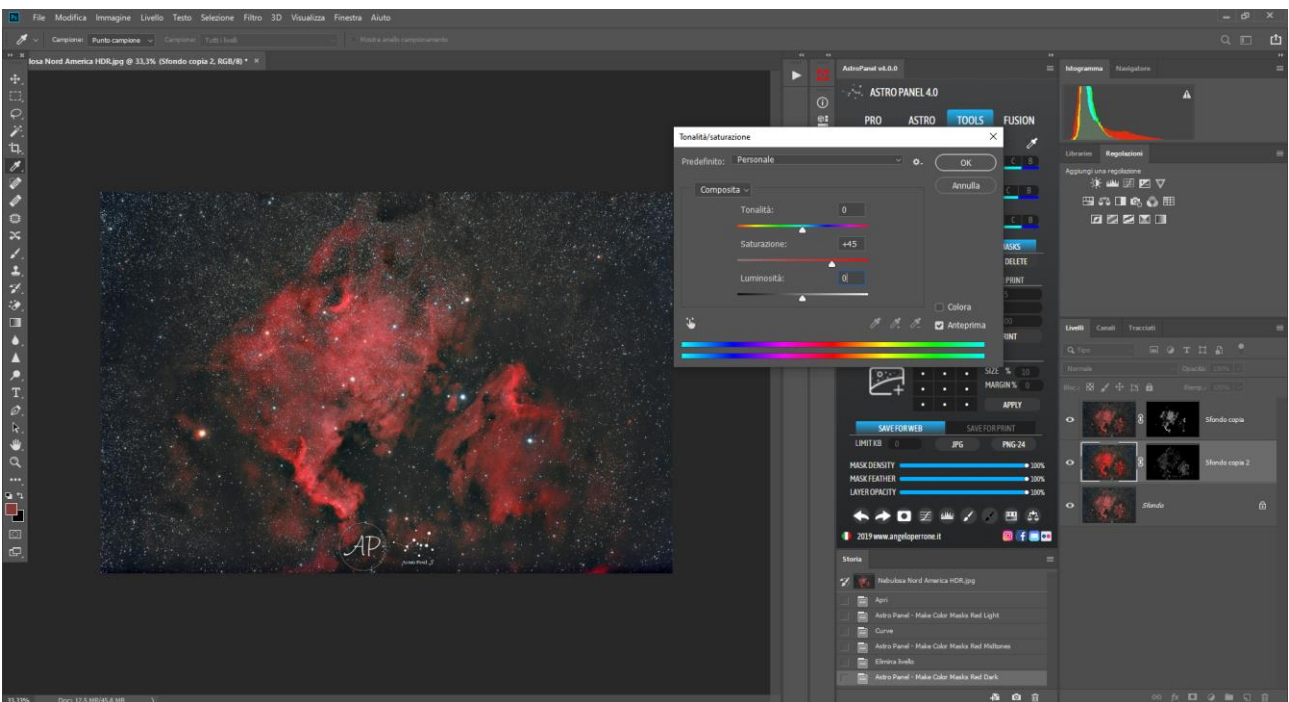
The operation is the same as for the brightness masks. In fact, using the dropper in the upper right corner we can identify the color and also the mask of correct brightness. In the photo you can see the selection of the mask in the brightness mask **Light1** of the red color.



In case you want to correct the lights of a certain color, as in this case of the red color, click on the R key in the Light Masks to create a new level and to apply any adjustment from the **Image** and **Adjustments** menu **select the instrument that we need**. This procedure applies to any image adjustment tool and any color mask.



In the figure above, the brightness of the red color was slightly reduced and we also introduced some contrast in the image. As for the curves we can also selectively increase the saturation/luminosity of the chosen color.

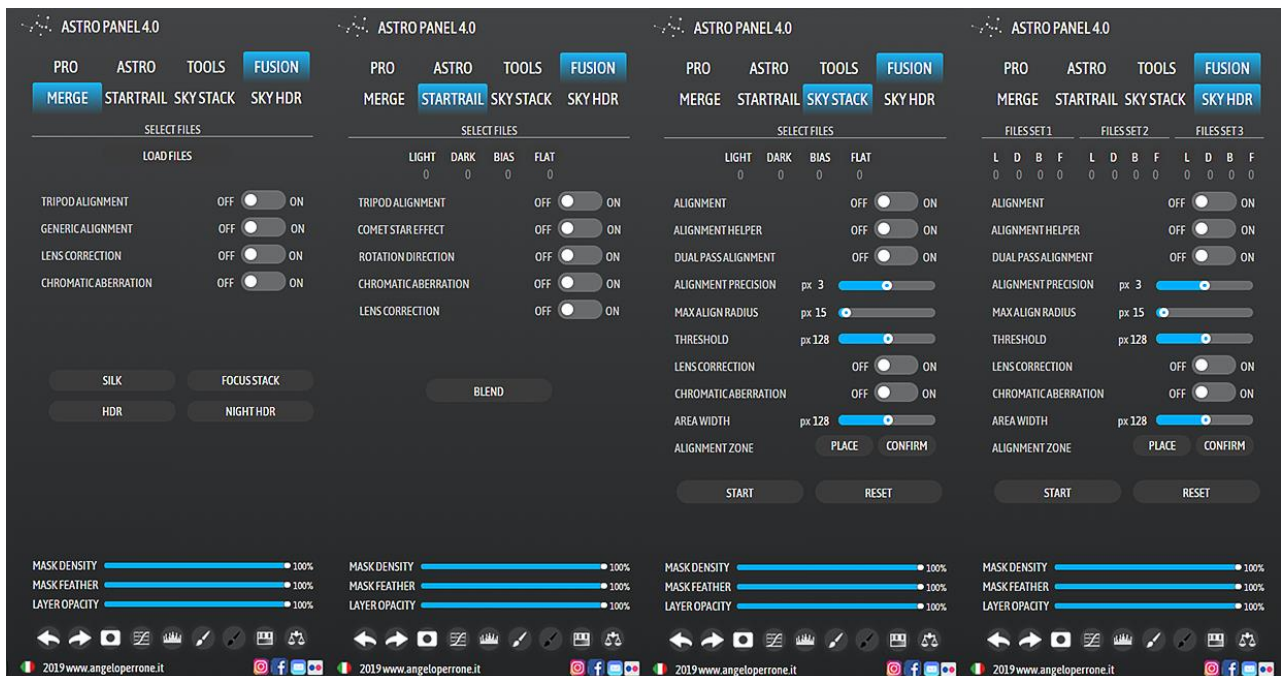


# The FUSION Section

This tab is a concentrate of technology and a novelty for Astro Panel. Indeed, it integrates all the features of the Fusion plug-in reviewed and updated with new features. The Fusion tab is divided into four main sub-sections with the relative dedicated functions:

- The "**MERGE**" section contains the most common types of image fusion developed from scratch and with proprietary code to speed up image summing operations;
- The "**STARTRAIL**" section adds up to hundreds of images to obtain beautiful linear Startrails with particular effects on the stars;
- The "**SKY STACK**" section allows you to sum up images of the Milky Way and the deep sky very quickly. You can insert light frames, dark, bias and flat fields;
- The "**SKY HDR**" section is one of the most advanced features of Fusion and blends up to 3 different exposures in one to achieve a dynamic range at night without equal;

Let's illustrate the various functions of the "**Fusion Section**" section by section.



# The MERGE Section

The Merge section allows us to sum lots of images to create a beautiful "SILK" effect that can be obtained even without the use of ND filters. Not only that, you can blend images to achieve Focus Stacking, combine beautiful images in **Classic HDR** and **NIGHT HDR** (multi-exposure at night).

Here is the list of the description of the commands:

**LOAD FILES:** This button allows you to select the files to be merged to obtain the silk effect.

**GENERIC ALIGNMENT:** This switch activates the automatic alignment of the levels, the one accessible to all in the section Edit> Automatic level alignment, and automatically finds the alignment method. [Tip: when using this alignment method, it is recommended to also activate the lens correction for a better result]

**TRIPOD ALIGNMENT:** This switch does the exact same thing as the generic alignment switch, but as an alignment method it uses "Reposition" instead of "Automatic".

**LENS CORRECTION:** This function allows you to open files by applying the distortion and vignetting correction available within the Camera Raw plug-in.

**CHROMATIC ABERRATION:** With this function we can also activate the removal of chromatic aberrations, also available in the Camera Raw plug-in.

**SILK:** Clicking this button starts the fusion to create the desired silk effect.

**FOCUS STACKING:** Clicking this button starts the fusion to create the Focus Stacking. Focus Stacking is a digital photographic technique that involves performing a series of shots of the same frame, each on a different focusing plane in sequence, in order to obtain a final image with a depth of field greater than that obtainable with traditional techniques.

**HDR and NIGHT HDR:** HDR photos are used to capture scenes with a wide dynamic range. Click on the HDR button to add day images or NIGHT HDR for night images.

# The STARTRAIL Section

Here is the description of the commands:

**LOAD FILES:** This button allows you to select the files to be merged to get the startrail effect.

**TRIPOD ALIGNMENT:** This switch activates the automatic alignment of the levels, the one accessible to all in the section Edit> Automatic level alignment, and automatically finds the alignment method. [Tip: when using this alignment method, possibly also activate the lens correction for a better result]

**COMET STAR EFFECT:** This switch allows you to activate the fusion with the falling star effect.

**ROTATION DIRECTION:** This switch allows you to activate the fusion with the falling star effect.

**LENS CORRECTION:** This function allows you to open files by applying the distortion and vignetting correction available within the Camera Raw plugin.

**CHROMATIC ABERRATION:** With this function we can also activate the removal of chromatic aberrations, also available in the Camera Raw plugin.

**BLEND:** Clicking this button starts the merger, and at the end of it a message will appear that will show the time taken for the merging process of the shots.

# The SKY STACK and SKY HDR Sections

Here is a list of the description of the commands:

**LIGHT:** This button allows you to select the light files to be merged.

**DARK:** This button allows you to select the dark files to be merged.

**BIAS:** This button allows you to select the bias files to be merged.

**FLAT:** This button allows you to select the flat files to be merged.

While the last three may or may not be selected, the light files must always be selected.

**ALIGNMENT:** With this switch you can activate the alignment of the levels, and it's the one available on Photoshop in File> Automate> Photomerge. Its accuracy is good but approximate. If the photos are not aligned correctly, they are discarded.

**DUAL PASS ALIGNMENT:** With this switch it is possible to activate the second alignment step. Activating this function, in fact, the photos will be aligned in an approximate way through the automatic alignment of Photoshop, to then be aligned to the maximum precision in a second step (with the maximum tolerance set in the slider "**ALIGNMENT PRECISION**"). This alignment algorithm is proprietary and is not present in any other Photoshop function.

**ALIGNMENT PRECISION:** With this slider you can change the accuracy of the alignment. The recommended value is 3 pixels, as an ideal compromise between precision and alignment speed. The lower the pixel value, the greater the accuracy but also the time required for alignment.

**MAX ALIGN RADIUS:** With this slider you can change the maximum radius in which you can align two images. If the set value is for example 15 pixels, the maximum possible alignment distance will be 15 pixels.

If the photos are not aligned correctly, they are discarded.



**AREA WIDTH:** With this slider you can change the width of the selection area. This command must be used keeping in mind that the greater the size of the area, the greater the calculation time necessary for each iteration of the **DUAL PASS ALIGNMENT**, in favor of precision.

For a normal 24MPX photo, the recommended approximate size is 150/250px, but if possible it is always better to prefer a larger area than necessary rather than too small.

**LENS CORRECTION:** This function allows you to open files by applying the distortion and vignetting correction available within the Camera Raw plugin.

**CHROMATIC ABERRATION:** With this function we can also activate the removal of chromatic aberrations, also available in the Camera Raw plugin.

**ALIGNMENT HELPER:** In some cases, it may happen that the alignment of Photoshop fails to correctly process the alignment of the images due to particular lighting conditions. With this switch it is possible to favor alignment by performing 7 maximum attempts by varying some parameters. In this way, if without the help of the Alignment Helper a good part of the photos were discarded at the end of the elaboration, it is possible to repeat the fusion activating this function, allowing with good probability also to align the images that had otherwise been rejected.

**THRESHOLD:** This slider allows to act on the threshold parameter of the **DUAL PASS ALIGNMENT**. If you don't know its impact in depth, it's always best to keep it at 128. It's an advanced command that allows the user to set the threshold to extract stars from the sky. For underexposed photos it may be necessary to bring this value to the left, while for overexposed photos to the right.

It should be used sparingly, with the aim of making the alignment stars more evident. To set the optimal value, simply click the "**PLACE**" button under the "**ALIGNMENT ZONE**" item, click on the selection with the right mouse button and select "Deselect" (or for the more experienced click the **CTRL + D** keyboard shortcut for the Windows users or **COMMAND + D** for Mac users), then go to **Image > Adjustments > Threshold**, and move the slider so that you see the stars in a defined way, but avoiding artefacts such as stars that should be round that become deformed white spots etc. Perfection would be a big star that can be made as round as possible. Then, once you found find

the best value for you, keep it in mind, and after clicking Cancel (or possibly OK, it is not important), you can set that value correctly on the "**THRESHOLD**" slider.

If you have not previously selected the alignment area you will have to click the "**PLACE**" button again and then when you have finished, click on "**CONFIRM**", or if you have previously selected the area, you can trivially close the document.

**PLACE:** This button allows you to load the first photo selected in the Light item and then position the alignment area in the most appropriate way.

The positioning of the alignment zone must be done with a very precise criterion, it must be centered on the largest possible star. In addition to selecting the Dual Pass alignment area, it can be used to immediately load one of our photos, so as to find the most appropriate threshold value based on specific needs.

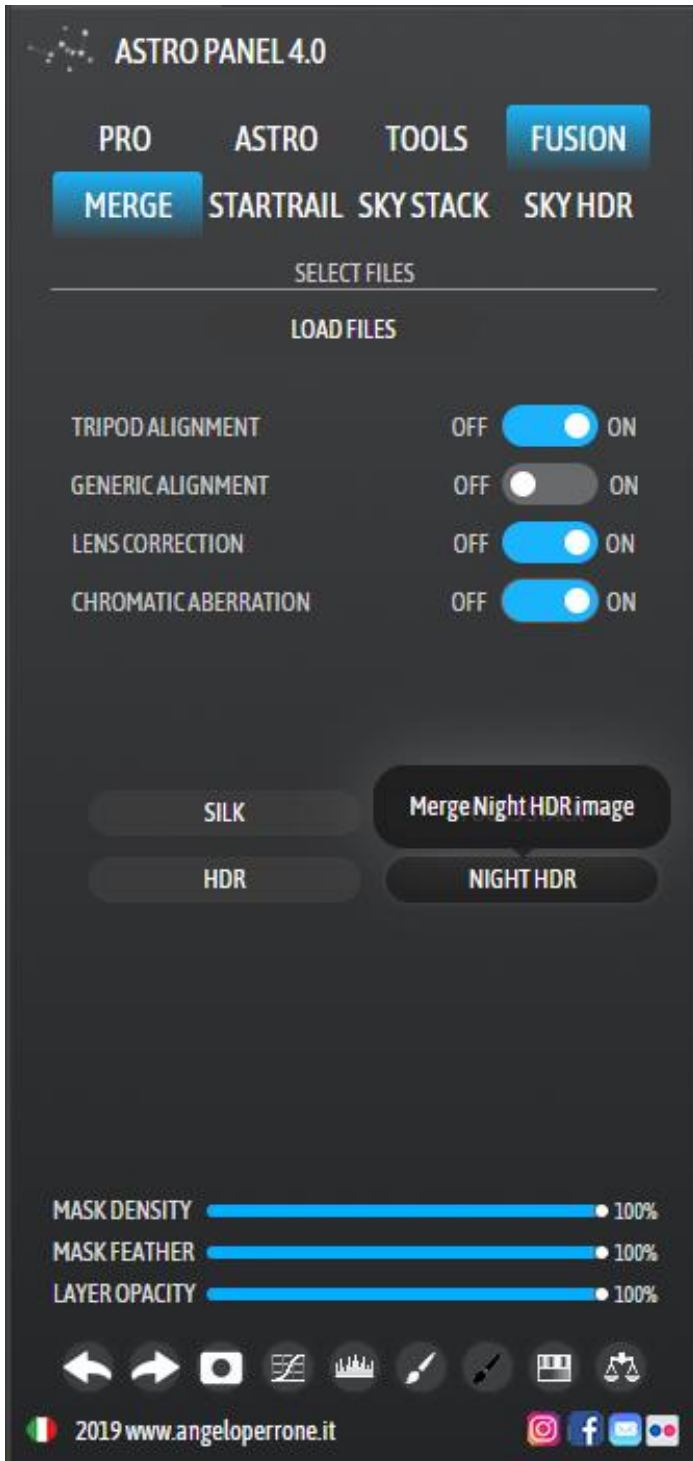
**CONFIRM:** At the end of the positioning, it will be enough to click this button so that the position of the area is recorded and applied during the processing.

**START:** With this key it is possible to start the Stacking process.

**RESET:** This button has the function of resetting the values of all the sliders to the default values.



# Tutorial Merge (Silk, Focus Stacking, HDR e Night HDR)

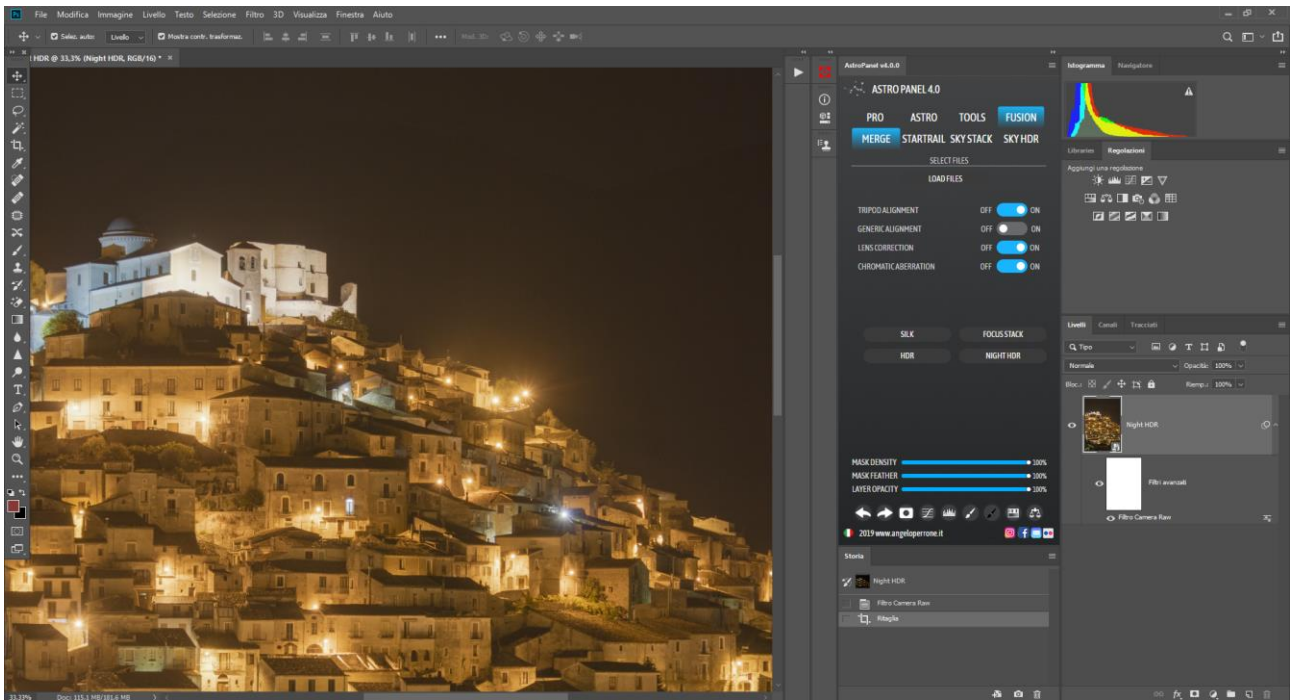


In this tutorial we will explain how to best use the **MERGE** section to achieve a beautiful Silk Effect, Focus Stacking, HDR or Night HDR. The operation is the same for all four casting methods.

For this tutorial, we use a series of night files to upload as "**NIGHT HDR**".

The first button to press is "**LOAD FILES**" to upload our photos. Once selected we must choose the type of alignment we want between "**GENERIC**" or "**TRIPOD**". We refer you to page 28 to discover the differences between the two commands. We choose "**TRIPOD**" (repositioning method) and active "**LENS CORRECTION**" to correct lens distortion and "**CHROMATIC ABERRATION**" to correct chromatic aberrations.

Once all the parameters have been set, I press the "**NIGHT HDR**" key and wait for the final processing.



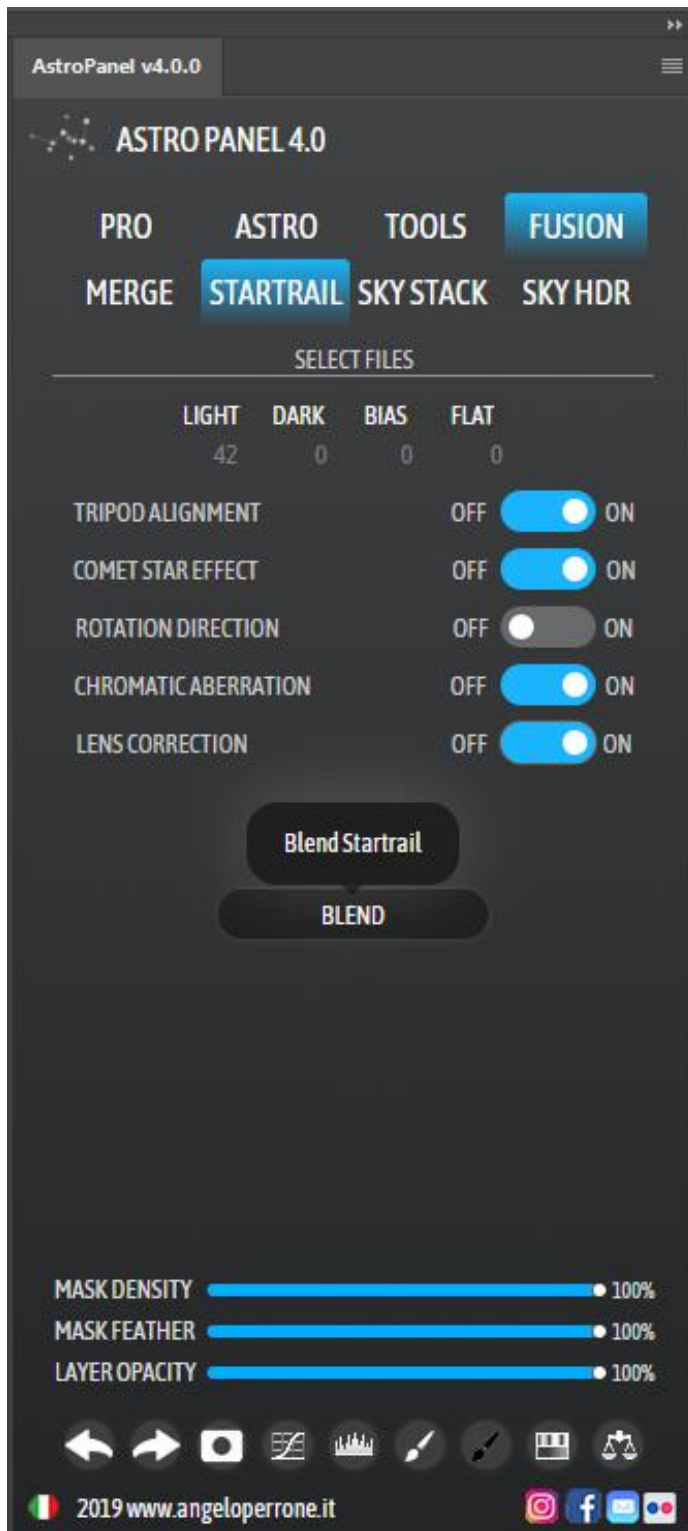
*The RAW used for this test were kindly sent by Andrea Consuele*

The end result is a layer as an advanced object so that you can modify the parameters again in Adobe Camera Raw (see the image above).

**This procedure is the same for the other types of fusion of the shots and the result obtained by the fusion can be enhanced and modified with the features present in the PRO section.**

# Tutorial for Startrail

Now let's illustrate how to merge images to create a Startrail. The procedure is similar to that of the **MERGE** form.



The first button to press is "LIGHT" to load the Startrail light frames. If available we can also load **Dark**, **Bias** and **Flat** frames. Once you have selected the photos to upload, we must activate the "TRIPOD ALIGNMENT" alignment. This switch activates the automatic alignment of the levels, the one accessible to all in the section Edit> Automatic level alignment, and automatically finds the alignment method.

In the Startrail tab we can also apply the "COMET STAR EFFECT" effect to give an effect to the stars streaked with shooting stars or to reverse the direction of the startrail using the "ROTATION DIRECTION" switch.

We activate "LENS CORRECTION" to correct lens distortion and "CHROMATIC ABERRATION" to correct chromatic aberrations.

Click on **BLEND** to start the image fusion and wait for our Startrail.

# Tutorial Sky Stack – Sky Stack HDR



In this tutorial we will explain how to stack images of the Milky Way or the deep sky using the **Sky Stack** and **Sky Stack HDR** section.

The difference between the two types of merger is in the file upload. In the first type we will only add files that have a **single exposure** while in the second we can add more files with **different exposures** (different times or ISO). We can also load dark, bias and flat to increase the final quality of the file.

Before starting the fusion of the images, we can edit all our files in Adobe Camera Raw without opening them in Photoshop CC (just click on the CLOSE button of Adobe Camera Raw) to generate the **XMP** files that will be read by Fusion. In this way we could for example correct the color or white balance of our images to have a correct final result.

After this introduction and after

closing Adobe Camera Raw, the first button to press is "LIGHT" to load the light frames, then we move on to loading the dark, the bias and the flat field frames. If we don't have all the required file types it doesn't matter, Fusion will still process the merging of the images.

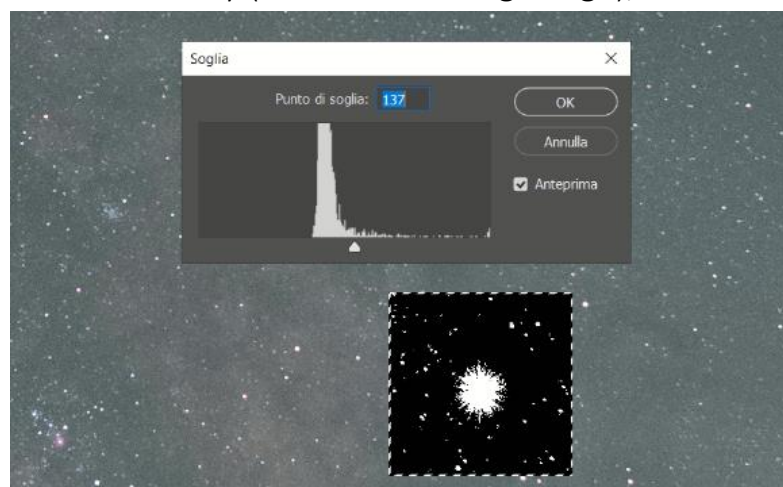
In Fusion, we have 3 types of alignment available for summing images. We refer you to page 28 for technical details.

In this tutorial, we chose 5 images of the Milky Way chased with star tracker Skywatcher Star Adventurer for a total of 120 seconds at ISO 1600. We can activate all 3 types of alignment or decide to activate only the first two. Next parameters to be set will be "ALIGNMENT PRECISION" and "MAX ALIGN RADIUS" which I set to 2 pixels to have a higher precision of alignment and 20 pixels the maximum radius in which it is possible to align two images and to avoid that some light frame.

If you have also activated the "DUAL PASS ALIGNMENT" we have to make a small introduction. The "DUAL PASS ALIGNMENT" is a type of customized alignment with which we can decide the accuracy of the alignment. This type of alignment is activated by setting the maximum threshold of the stars to have a maximum alignment accuracy, that is by setting the slider "THRESHOLD".

To set the threshold, proceed as follows:

- Set the sample area of the image, without exaggerating, for "AREA WIDTH";
- I press the PLACE key and go to look for an area of the sample image. In my case I used the planet Jupiter as a sample star for alignment;
- Go to **Image> Adjustments> Threshold**, and move the slider so that you see the stars in a defined way (see the following image);

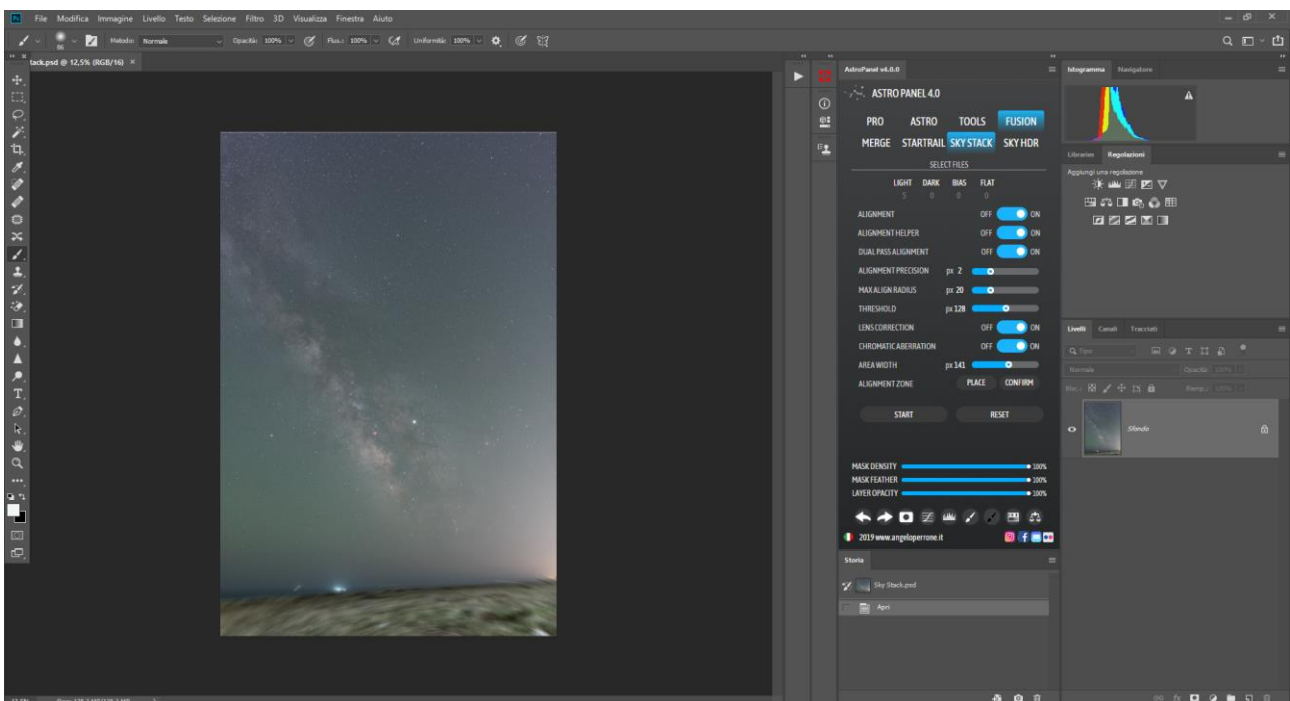




- Once the best value is found, click on Cancel or OK (it is not influential), you can correctly set that value on the slider "**THRESHOLD**".
- Press "**CONFIRM**" to confirm these parameters;
- You can also correct lens distortion using the "**LENS CORRECTION**" switch and chromatic aberrations with the "**CHROMATIC ABERRATION**" switch.
- To start image stacking press "**START**".

If the images do not perfectly align, we click on the "**RESET**" button to reset all the original parameters and modify them so that the fusion is successful.

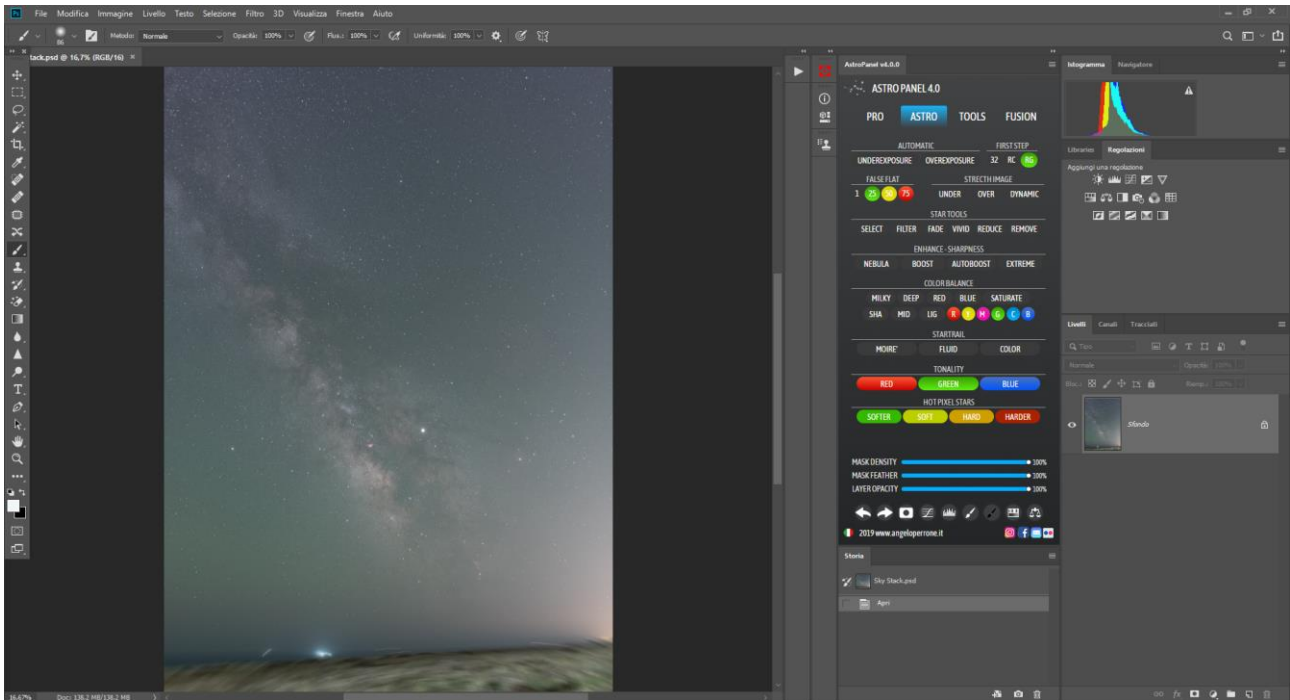
**Tip:** If you are using light frames photographed with ultra-wide angle lenses and not starred, do not use the "**LENS CORRECTION**" function.



Follow the graphic processing tutorial of the Milky Way on page 37.

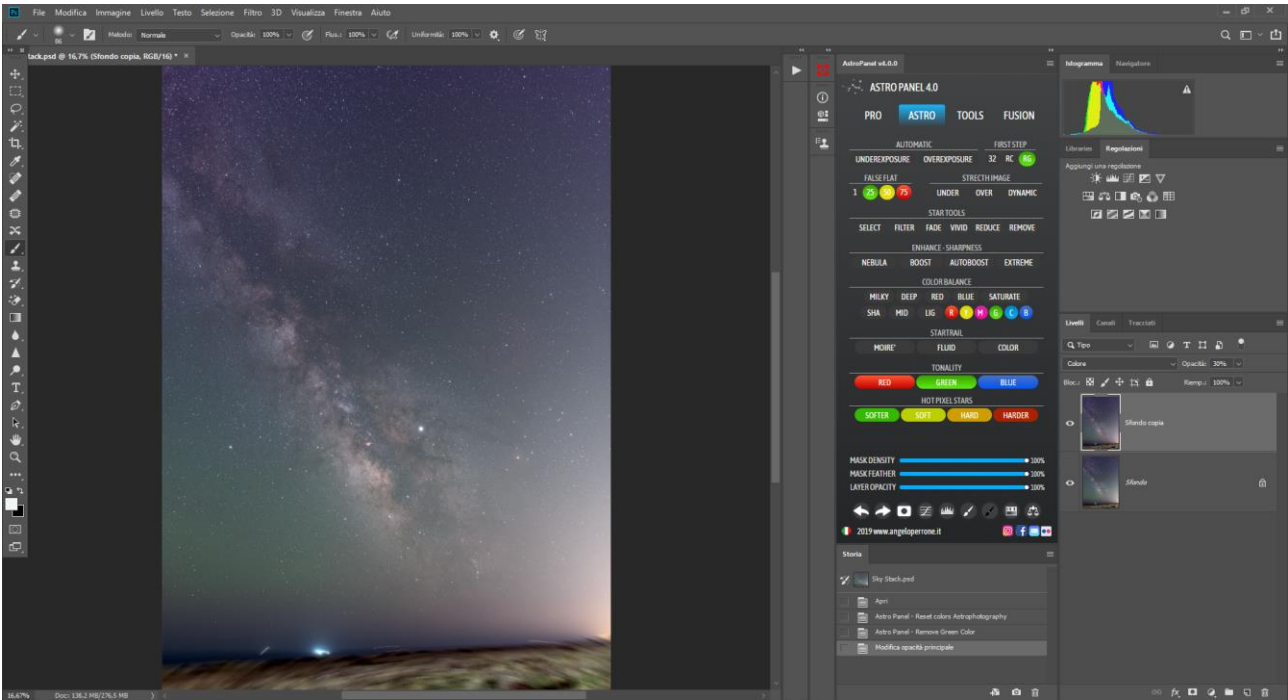
# Tutorial: how to edit Milky way?

After stacking the Milky Way with the advanced features of Fusion we move on to the post production of our file. Post production is identical for a single Raw file.

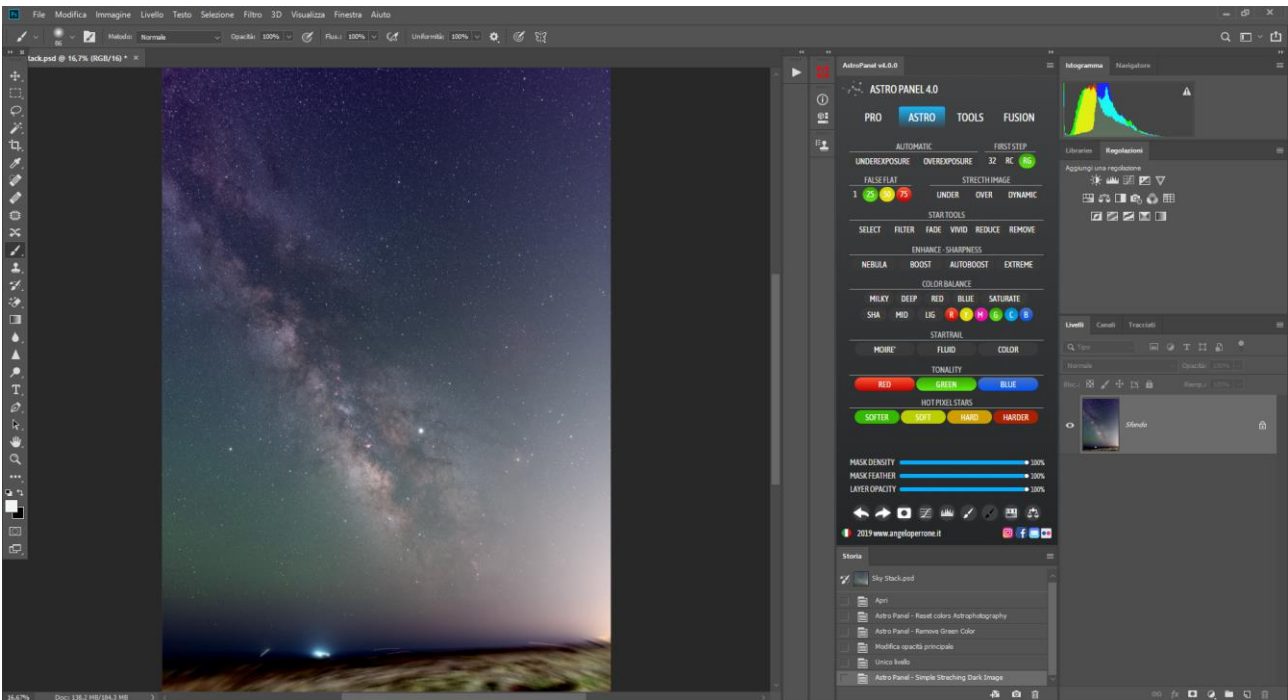


The first step is to reset the colors of the image and decrease the green cast that is present in the image. The commands to be used are **"RC - RESET COLORS ASTROPHOTOGRAPHY"** and **"RG - REMOVE GREEN CAST"**. If you have already corrected the colors before stacking the images in Adobe Camera Raw, just try to remove (if present) the green cast.

When we click on the **"RG - REMOVE GREEN CAST"** command, the background is duplicated and we can adjust the opacity to achieve the result we want. In this case I set an opacity of 30%. We combine the levels after arranging the tones and adjusting the green cast.

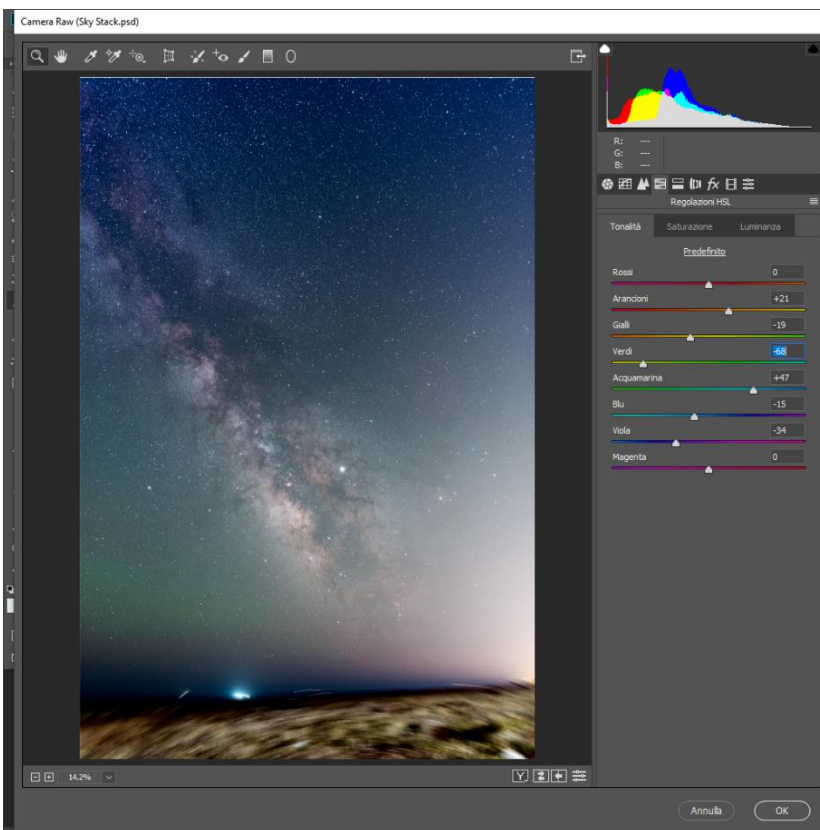
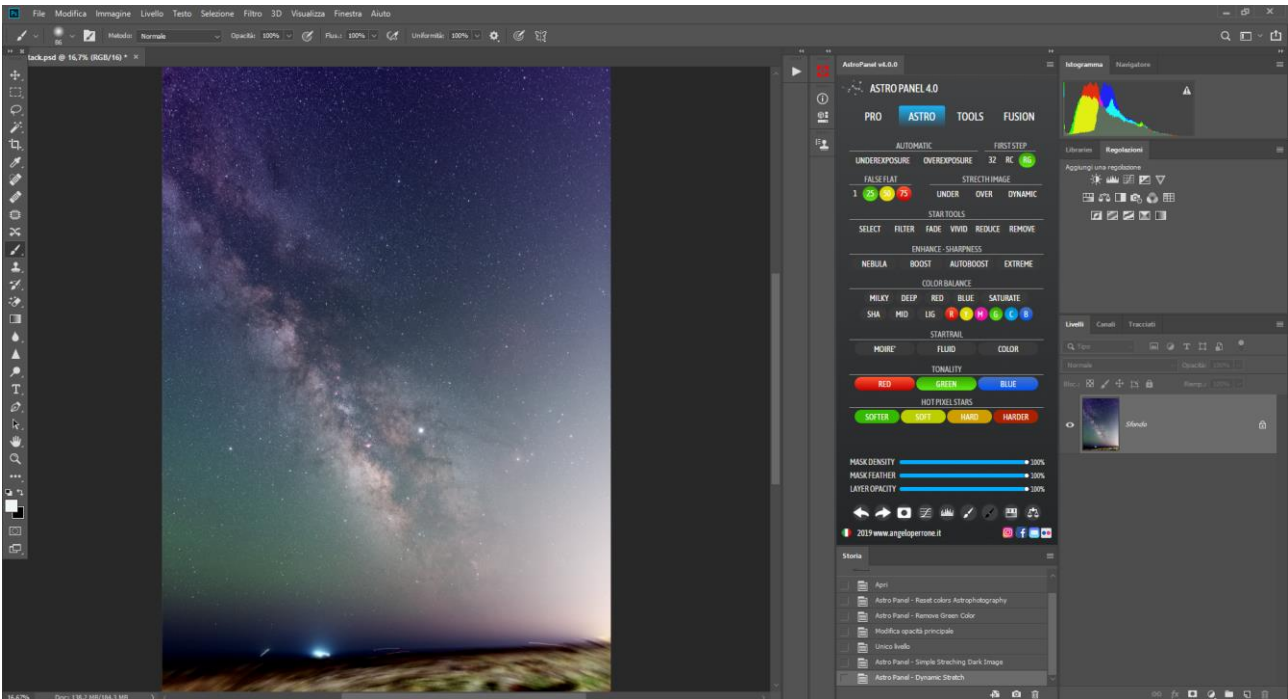


Now we need to analyze our image by looking at the histogram at the top right. The analysis is necessary to switch to the other group of commands and understand which function to use. We are talking about the **"STRECH IMAGE"** group that serves to bring out the hidden signal that is in the Milky Way and to contrast the image, so we click on the **"OVER"** button which is used for overexposed images (as in this case). Use the **"UNDER"** button only if your image is underexposed. You realize it because the histogram pixels are turned to the left contrary to what happens in the image.





If the result is not satisfactory, we can always use the curves to darken the image if you use the "UNDER" command. With the new update we have a new "DYNAMIC" command available that amplifies the hidden signal of the Milky Way or deep sky objects even more.



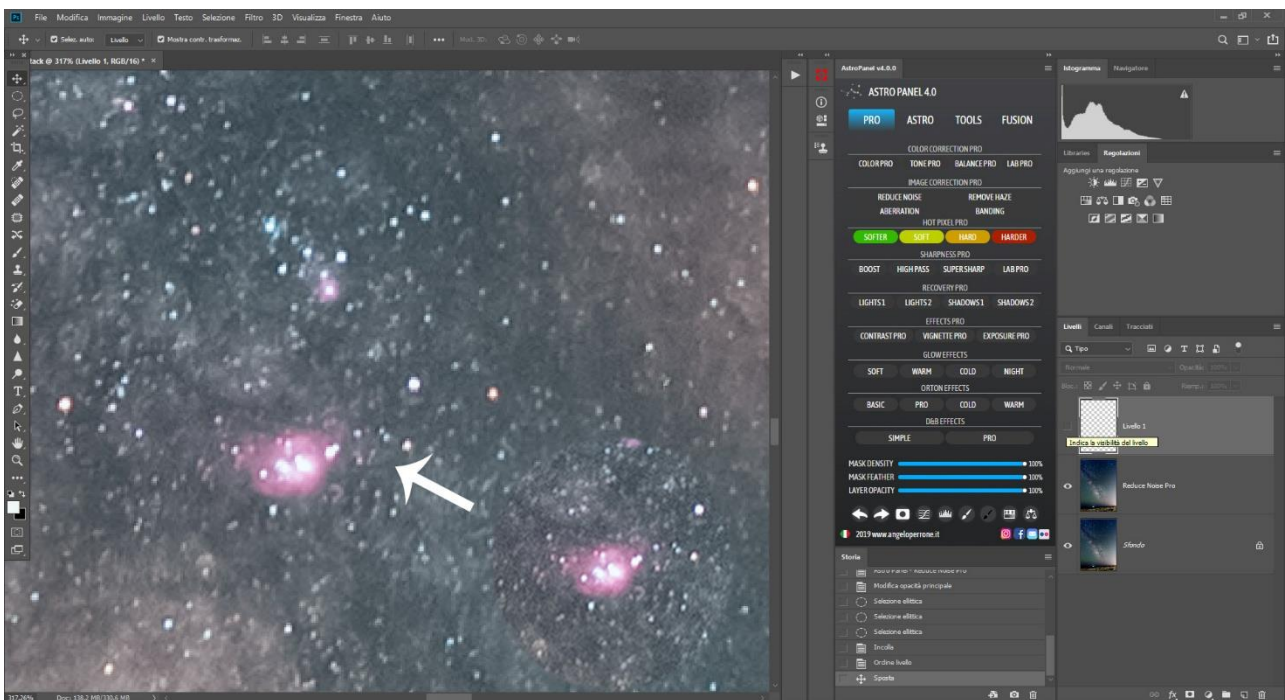
During the graphic elaboration it can happen that our image has very different shades from the reality that we have photographed. We will manage our image in **Adobe Camera Raw** with the use of the HSL panel.

Try to move the various shades to get a sky as blue as possible and the shades of the milky way brown. The nucleus of the milky way must remain neutral and

tends to yellow. For the green airglow in the air above the horizon, eliminate it or reduce it as you like.

The **Airglow** or nocturnal luminescence is a weak light emission of the earth's atmosphere and as a consequence, the night sky is never completely dark.

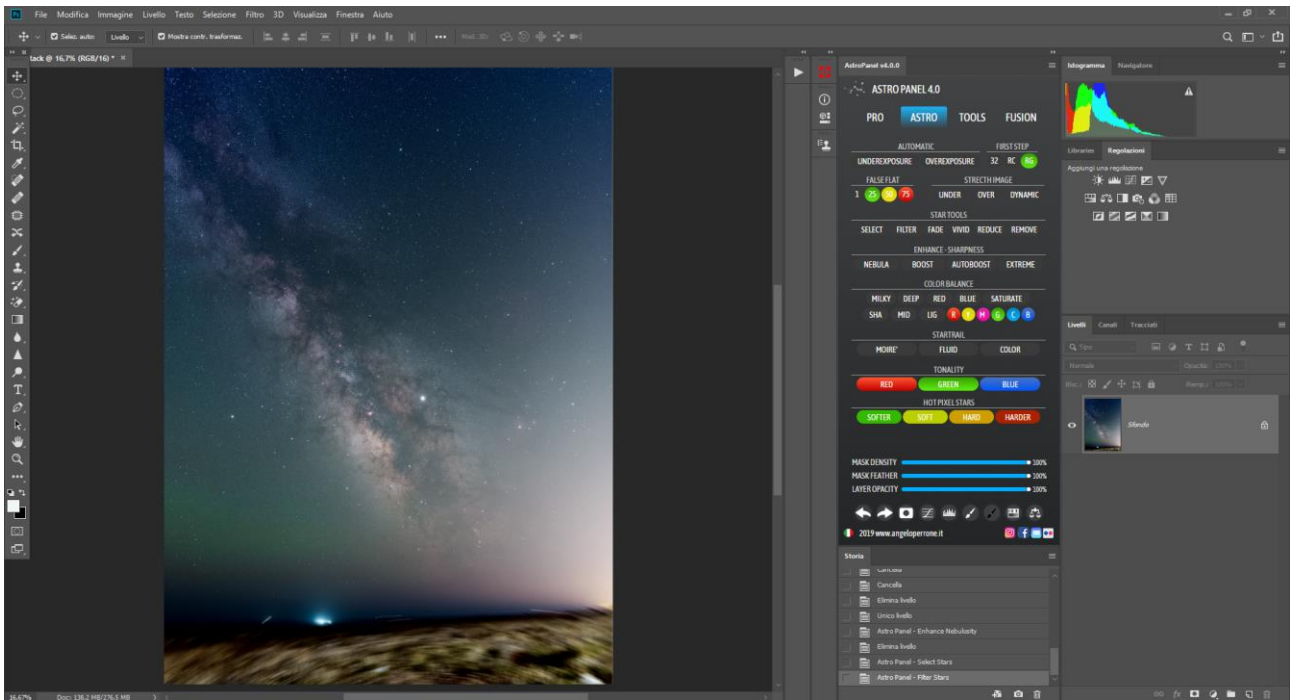
Next step is the reduction of chromatic noise and digital noise present in our image. To do this we can use the dedicated group of functions "**IMAGE CORRECTION PRO**" in the **PRO** tab and click on the "**REDUCE NOISE**" function. We adjust the opacity of the duplicated layer to safeguard the detail.



In just one click we have set the color noise and digital noise. We have other tools available but for now we will not use them.

If you noticed, we skipped "**FALSE FLAT**". These functions are not indicated for the Milky Way, but essential for the post production of deep sky images. This command removes in two steps and automatically the "unpleasant" gradient that we find in our astronomical photos.

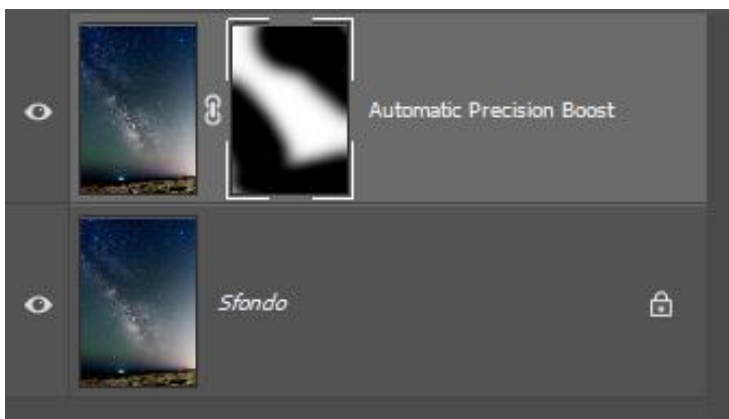
We can give a softer look to our post production using the commands of the "**STAR TOOLS**" group. Try to select all the stars with the "**SELECT**" command and blend them with "**FILTER**". Other commands are available and use them according to your preferences. I refer you to page 14 to read the technical details.



The next step will allow us to extract even more signal from the Milky Way and increase the contrast of clouds and image. We are talking about the **"ENHANCE - SHARPNESS"** commands.

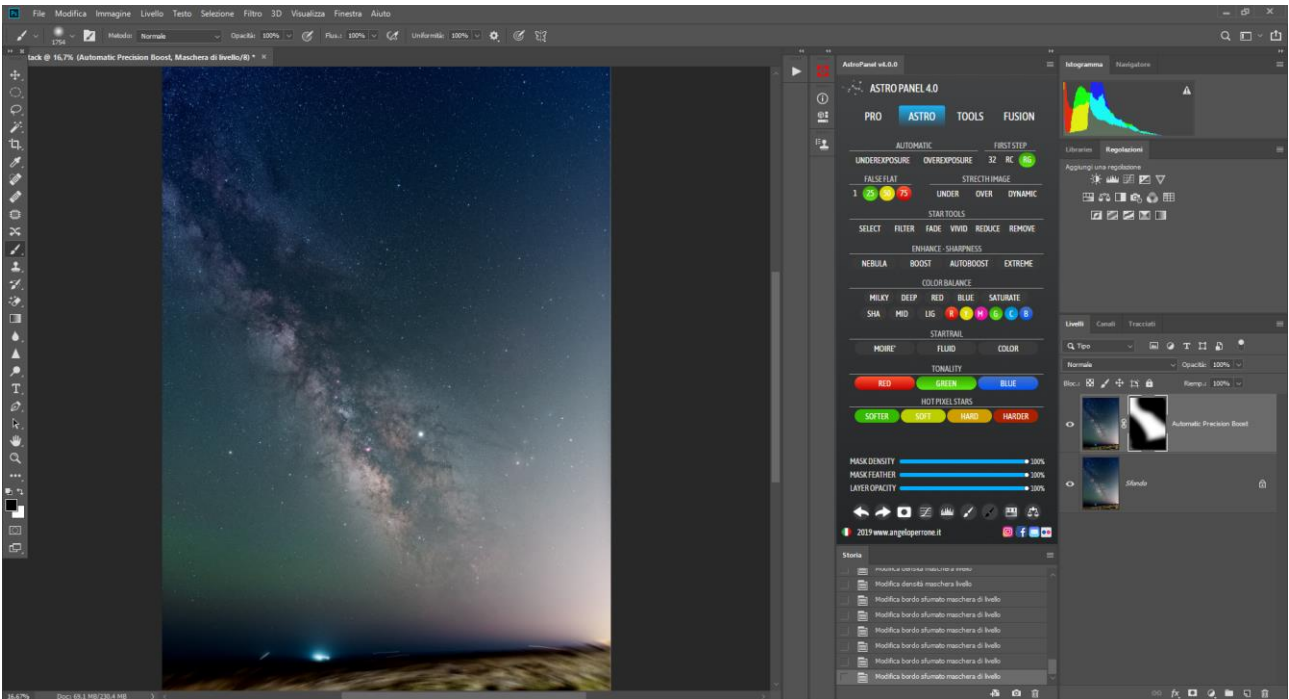
The **"NEBULA"** command automatically performs its work by reducing the diameter of the stars and highlighting the nebulousity of the milky way or of deep-sky objects. This step can be skipped if you performed the **"FILTER"** on the stars. In addition, the **"NEBULA"** command takes a long time to complete and a fairly powerful PC / MAC.

Now let's increase the details of our image. In our case we will use the **"BOOST"** command to highlight the milky way strands using a black or **"AUTOBOOST"** brush that will do it automatically for us. However, it is always recommended to work **step by step** to achieve a fine result without producing artifacts and destroying the image.

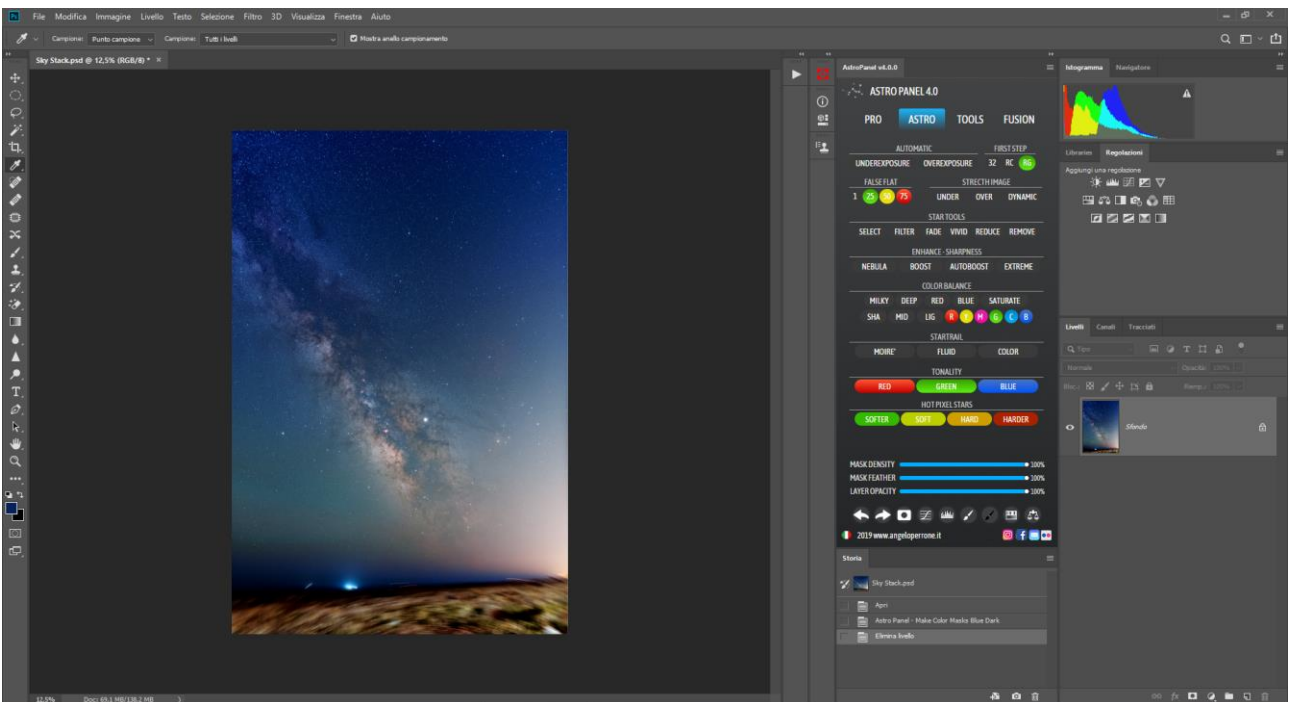


With a black brush, we have hidden the areas of the image that we don't want to be affected by this sharpening method and left the protagonist of our image in white. See image on the following page.



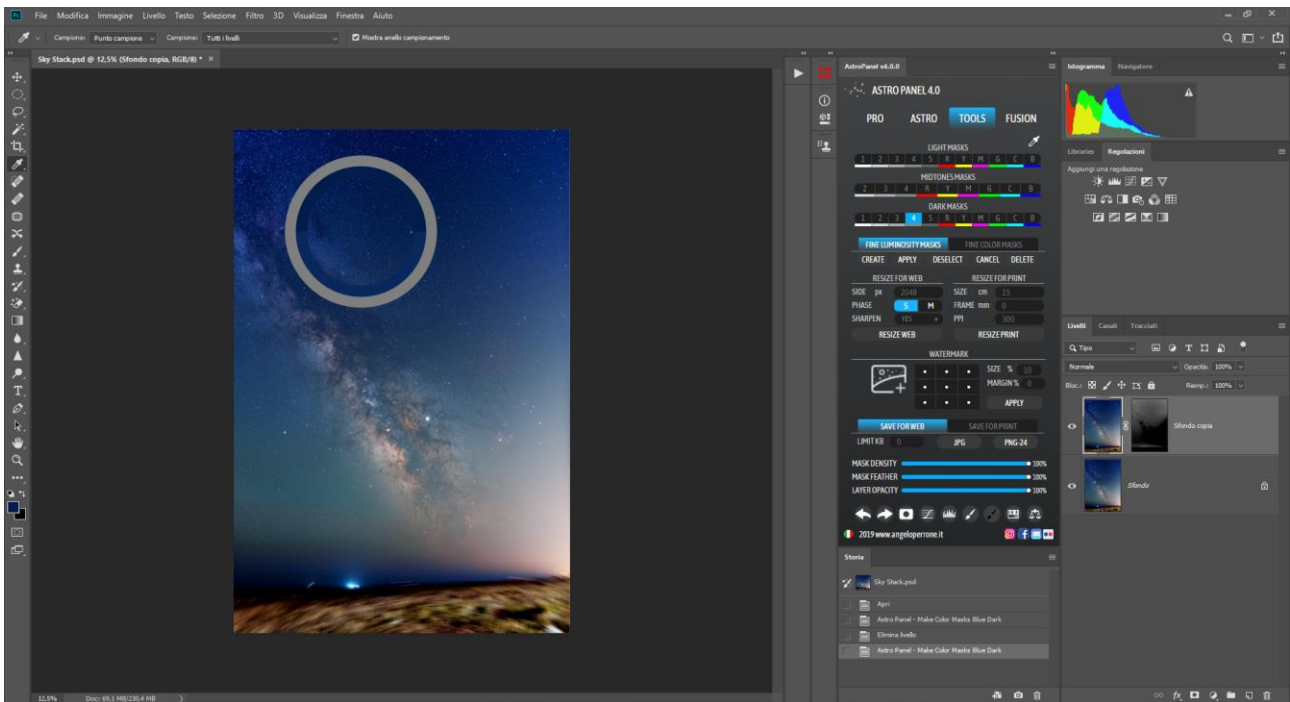


At this point, we work on the color with the help of the "COLOR BALANCE" group. In our case, the command "MILKY - SELECTIVE COLOR MILKY WAY" helps us to adjust the colors of the Milky Way. If the result is not satisfactory or the colors are off, on the right we have the command "SATURATE" which enlivens the colors in a very accentuated way and increases the detail.



But what if the colors become very saturated or we want to correct a particular tonality? In this case we must reduce the saturation of the blue color and to do this we can use one of the colored buttons or open the "TOOLS" tab. Further information on page 23.

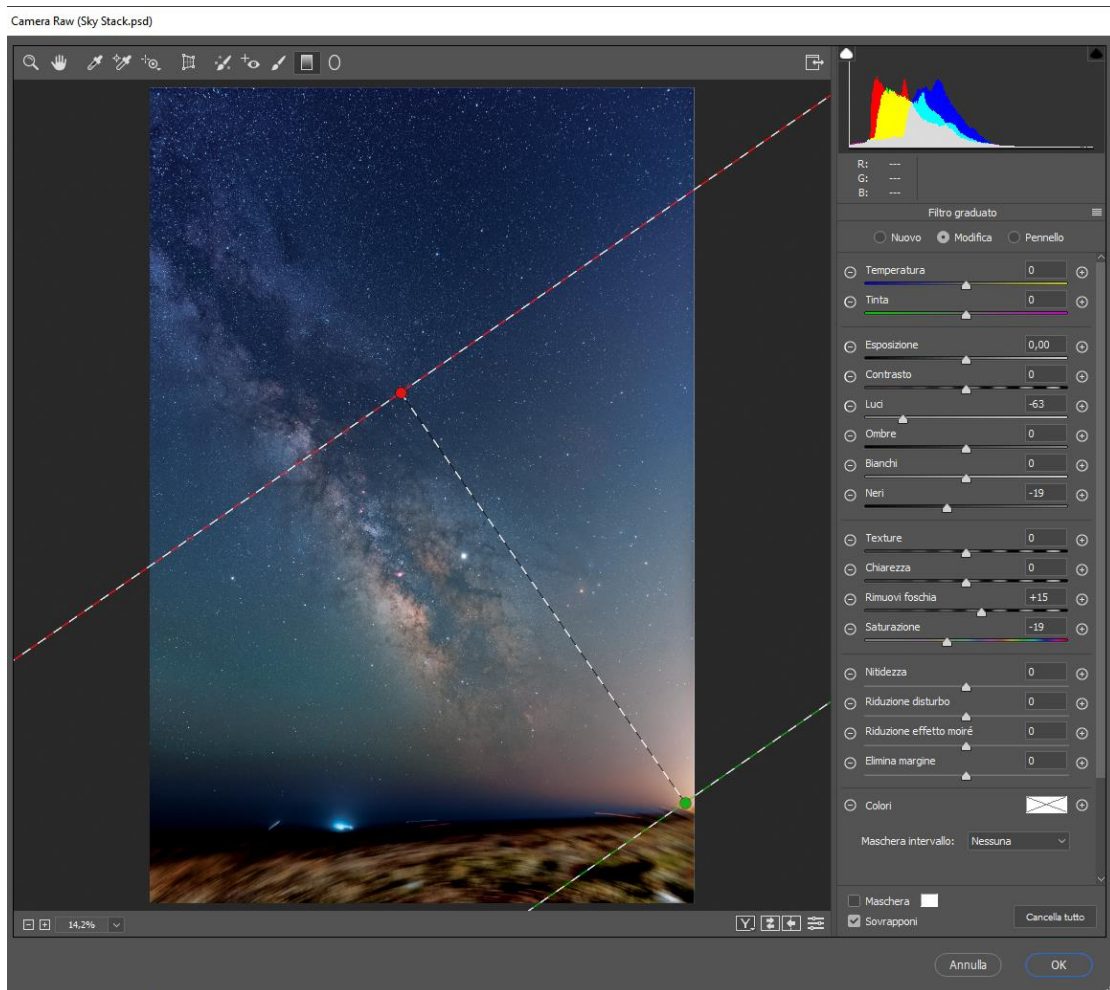
We use the eyedropper to understand the blue color in which area of the image is found and we press the **BLUE** button of the **brightness masks** in the **Shadows**.



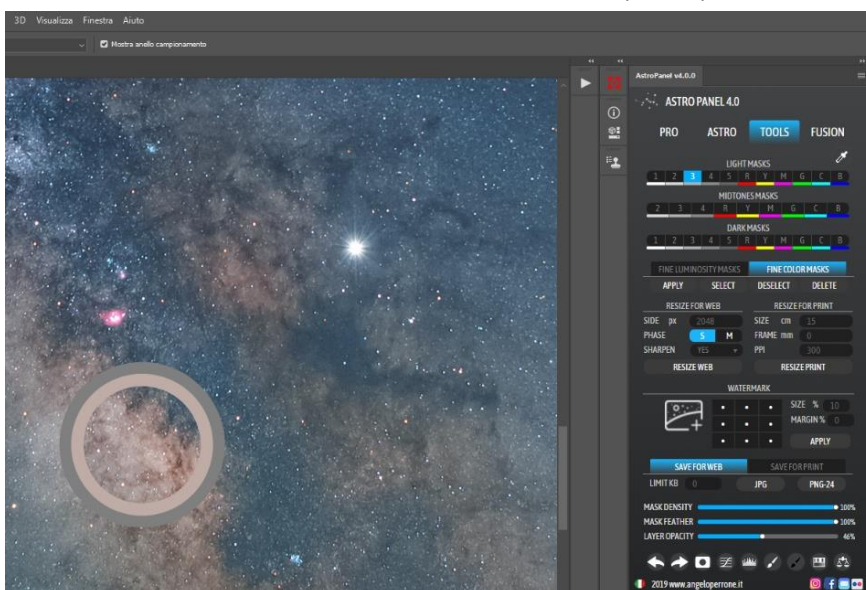
Now let's proceed to **reduce** the **saturation / vividness** of the **BLUE** color by searching for the correct function from **the Image menu -> Adjustments -> Hue / Saturation** or **Vibrance** and press single level if the result satisfies us. We can increase the vividness or saturation of other main colors such as Red contained in the core of the image (for example).

Now let's open **Adobe Camera Raw** and try to reduce the light pollution on the right of the image with just a few clicks. Through the graduated filter we can select the area where we will reduce light pollution and set these parameters.

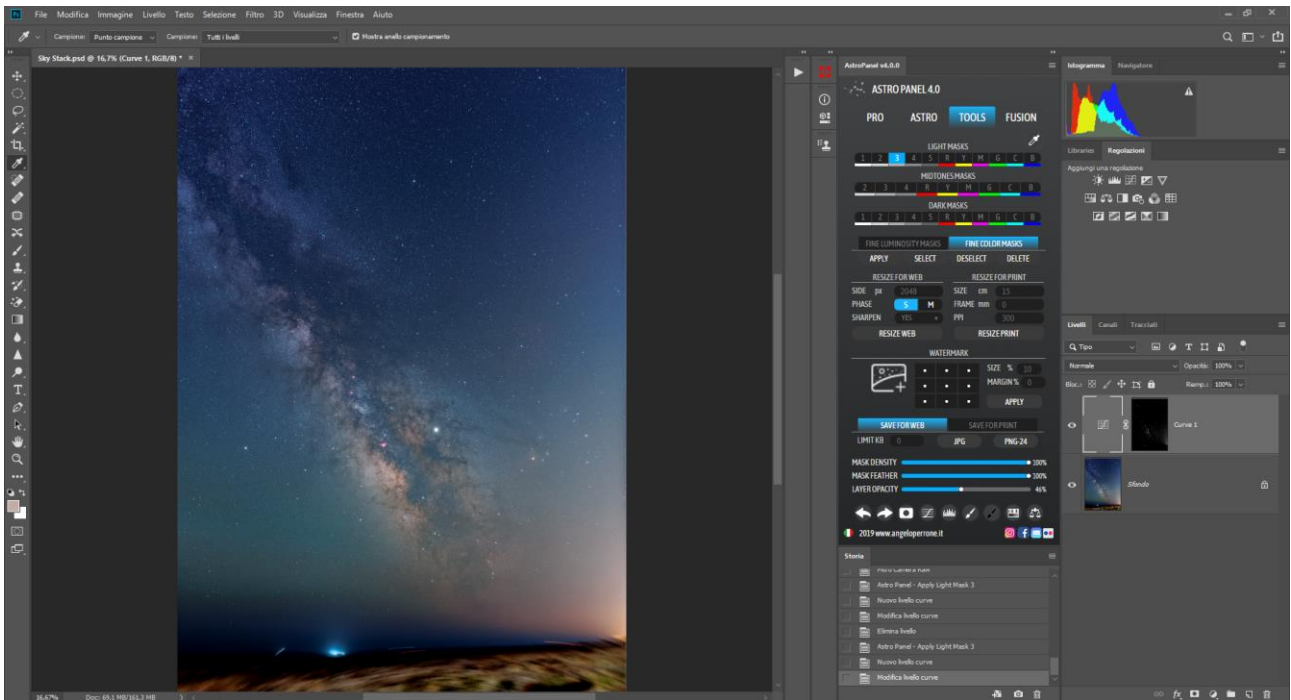




Once the light pollution correction is finished, we suggest you manage and test the brightness masks in real time. In fact we can bring out other details from the image that are hidden in the nucleus of the Milky Way.



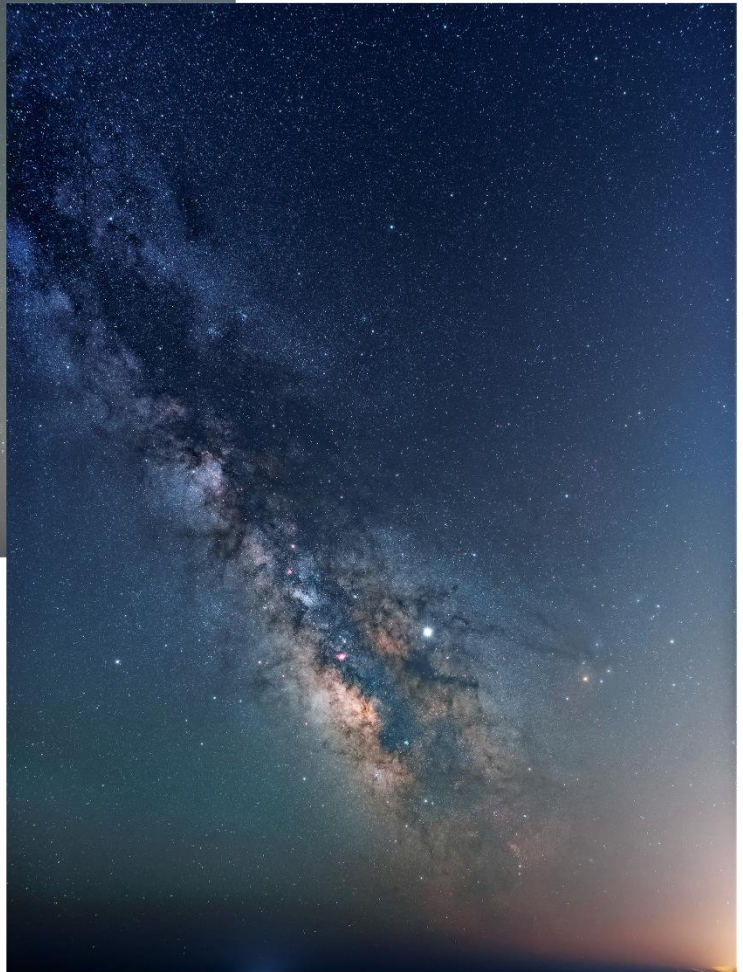
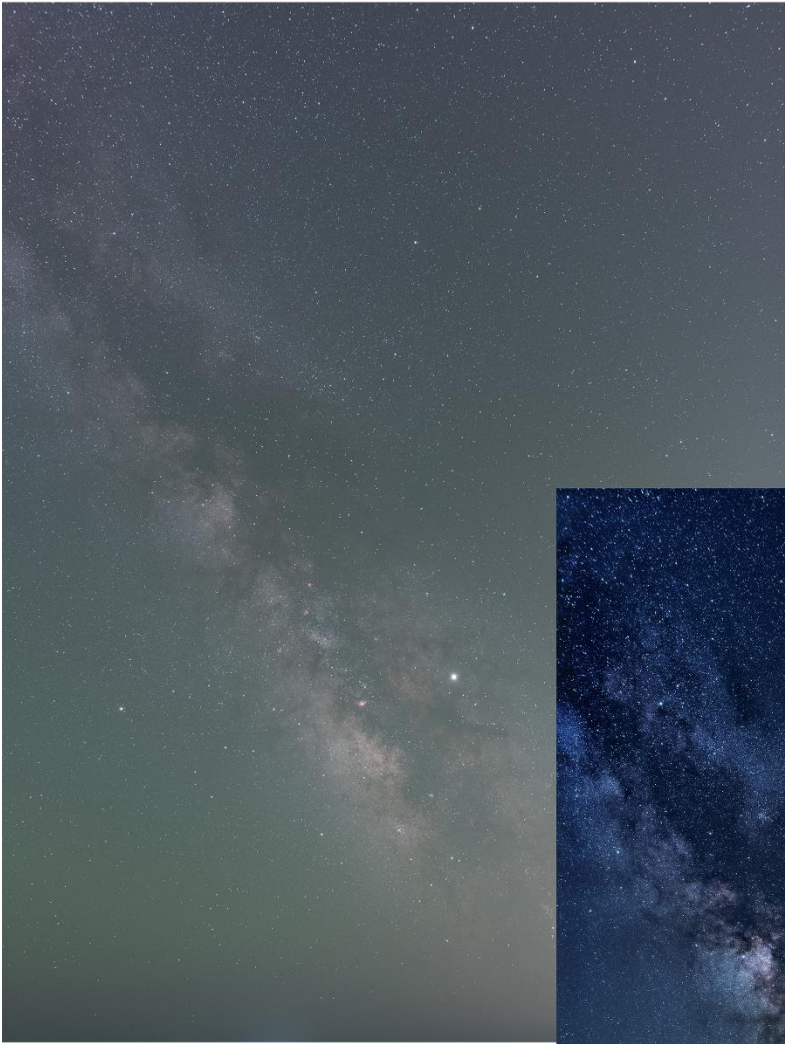
Let us arm ourselves with the "TOOLS" dropper and try to find out which brightness mask to use. As you can see from the following photo we click on the "LIGHT3" mask and through a new level of curves adjustment we adjust the brightness of the core.



Click on "Single level" if the result satisfies us and move to the **PRO** tab to give a magic touch to our photo. Analyzing the image, we have available commands like "**ORTON EFFECT**", "**GLOW EFFECT**", "**D&B EFFECT**" to make the latest changes. Adjust the opacity of the effects to achieve the desired effect.

We can conclude by saying that in just a few minutes and with the right commands we have arrived at a satisfactory result without creating artifacts, maintaining a remarkable detail and correct colors.

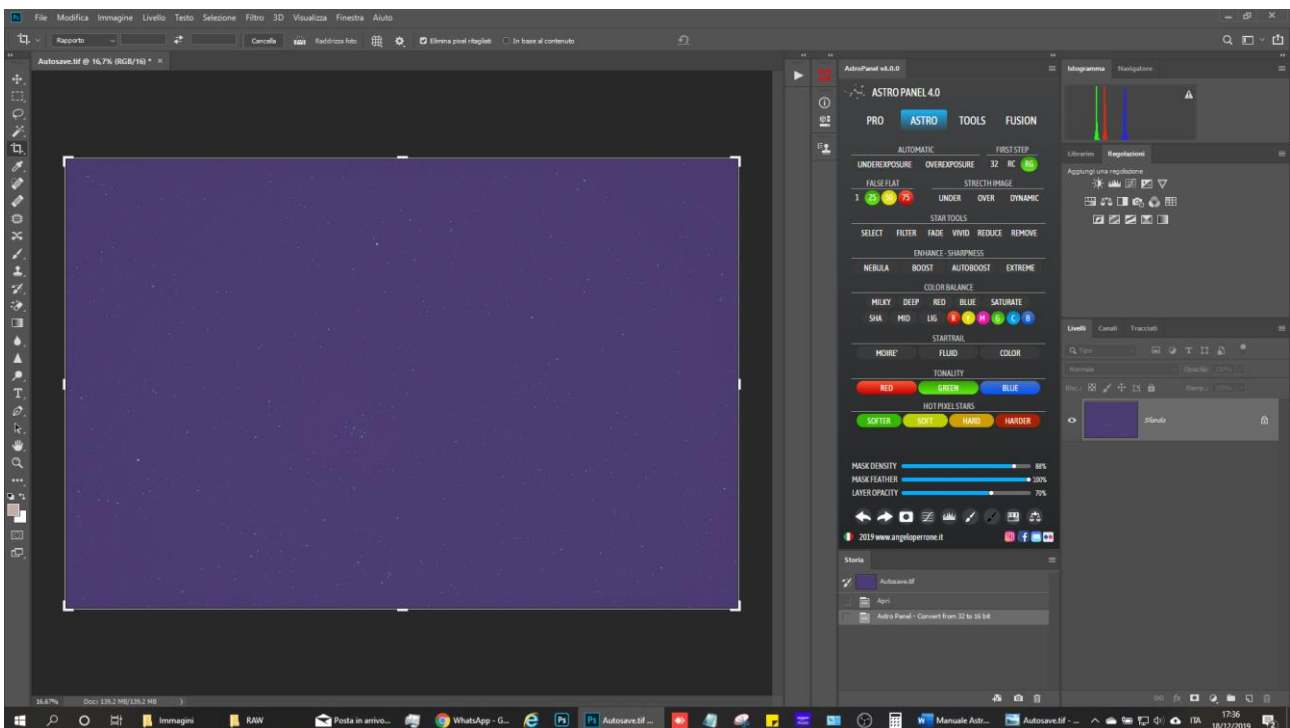
On the following page you can view the before and after of the image just processed.





# Tutorial: how to edit Deep Sky images?

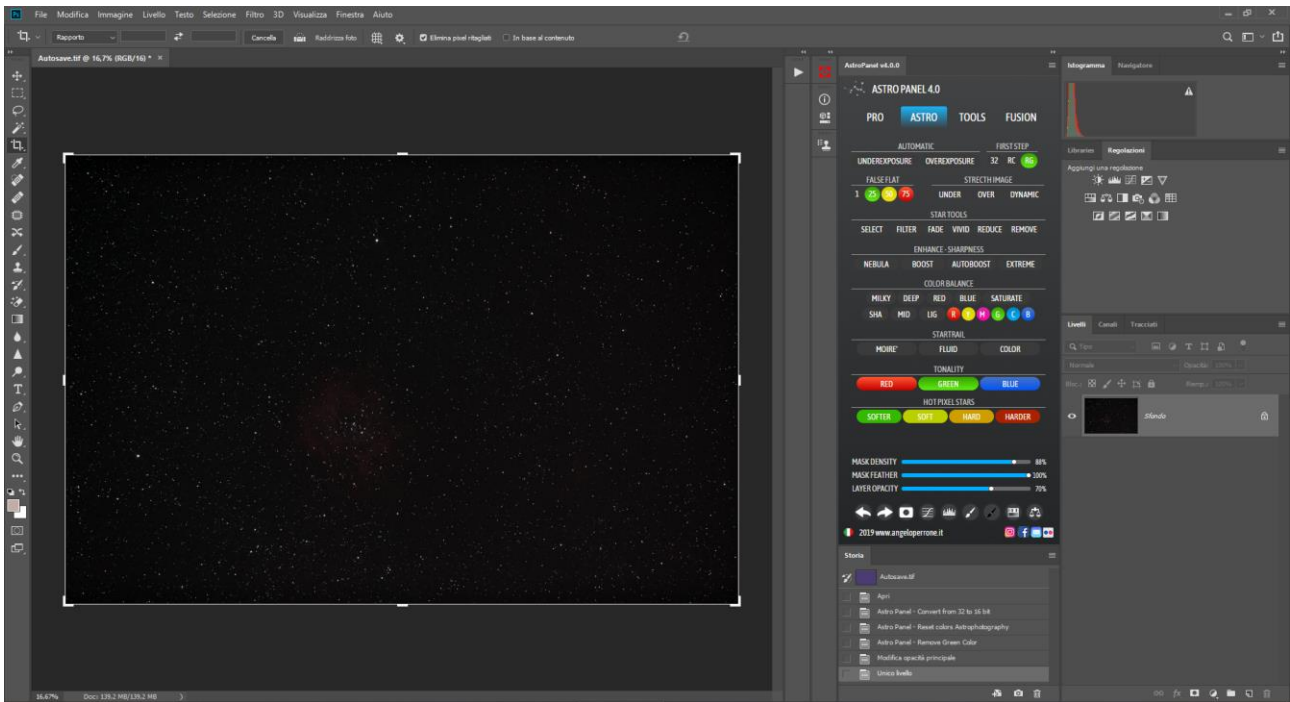
In the previous chapter we explained how to post produce the Milky Way with our panel "Astro Panel 4.0". The post production process is very similar and differs only in the use of some groups of commands such as "STAR TOOLS" and "FALSE FLAT". If we have stacked our images in Fusion and then reset the colors with the command "RC - RESET COLORS ASTROPHOTOGRAPHY".



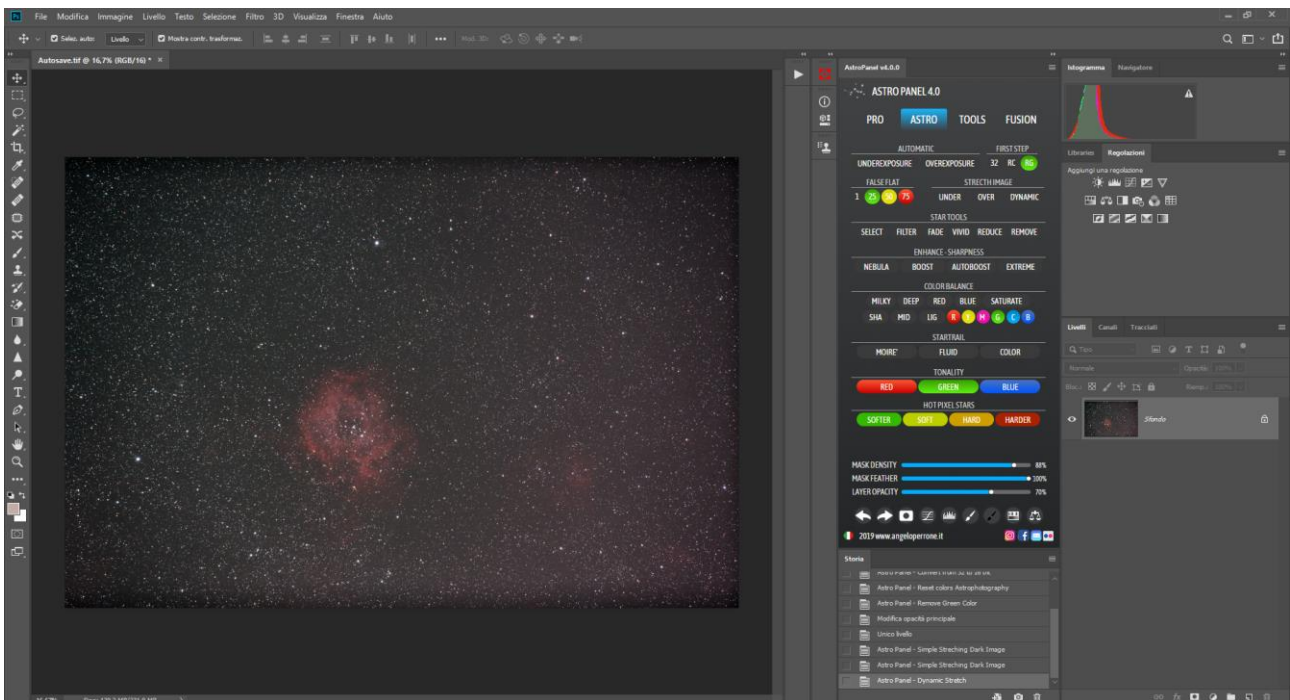
As in all the astrophotography images it can happen that there is a green cast.

To decrease it the command to use is "RG - REMOVE GREEN CAST".

When we click on the "RG - REMOVE GREEN CAST" command, the background is duplicated and we can adjust the opacity to achieve the result we want. We combine the levels after adjusting the green cast.

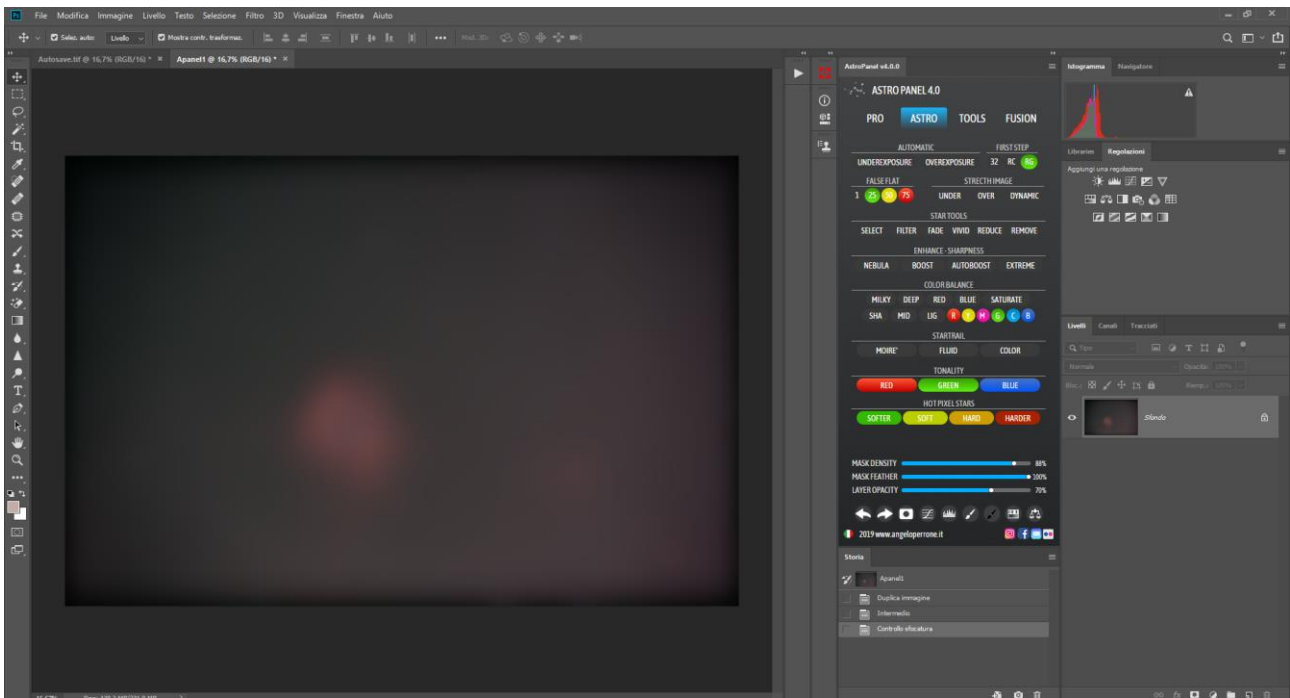


The next task to do is to analyze the histogram at the top right of our images. The analysis is necessary to switch to the other group of commands and understand which function to use. We are talking about the group **"STRECH IMAGE"** which serves to bring out the hidden signal from the image, so we click on the **"UNDER"** button that for the underexposed images. The **"OVER"** command for overexposed images. It is recommended to use the **"UNDER"** command several times only if your photo is still underexposed after the first click.

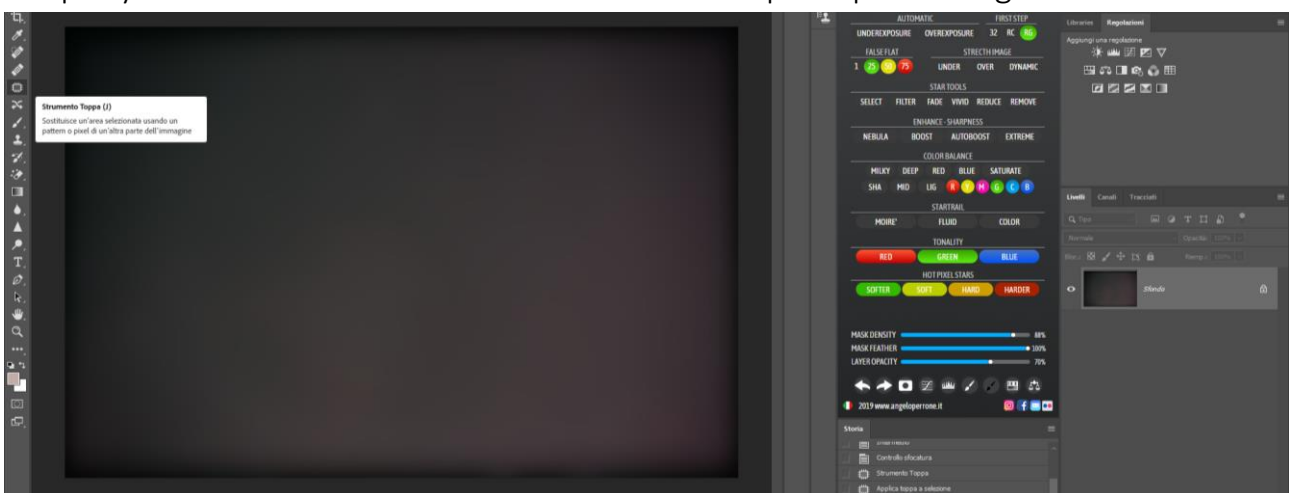




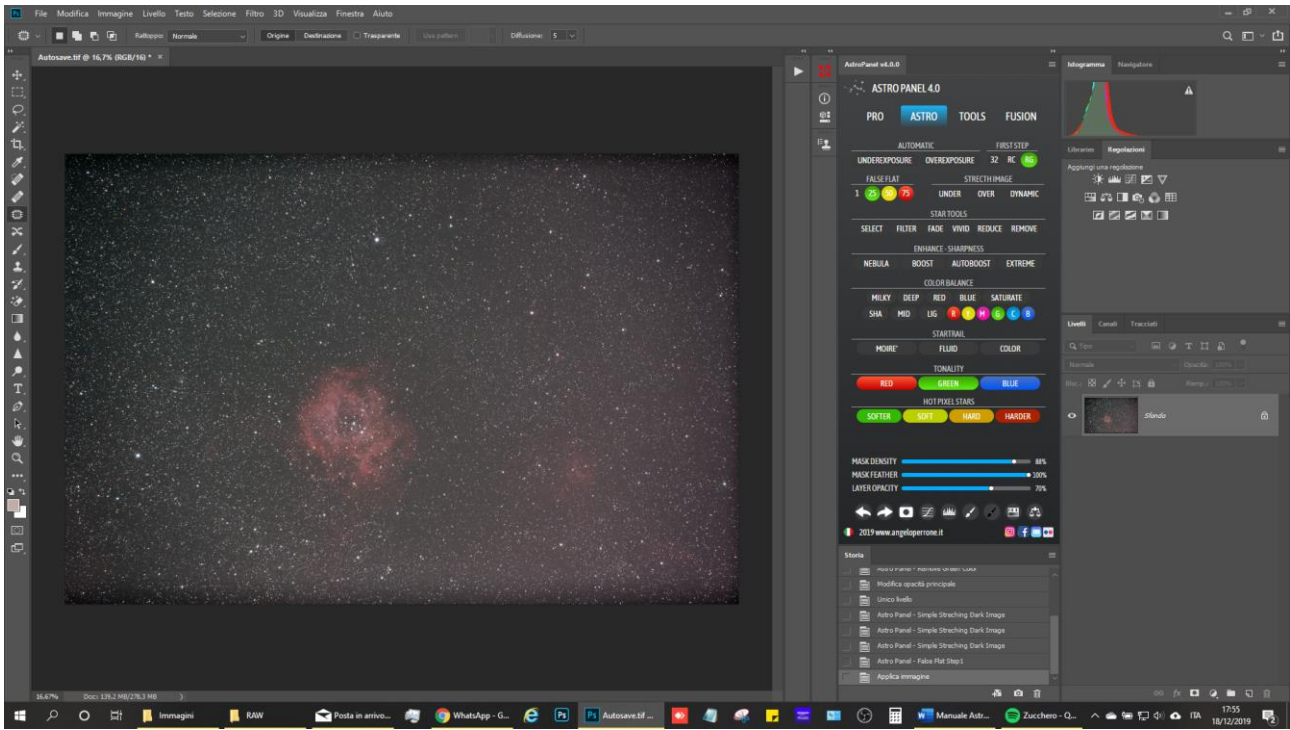
The image has now acquired a lot of brightness and we were able to bring out the signal of the nebula that was previously practically absent. Our task now will be to clean the image from this bright gradient with the "FALSE FLAT" commands. First command to use is "1" to generate the artificial flat that we then have to subtract from our starting image. Then we click on "25" or "50" or "75" based on the percentage of gradient we want to remove from the image. If the result does not satisfy us, we can go back with the dedicated key down and repeat the two operations.



Depending on the computing power of your computer, the command will take from 30 seconds to a few minutes to process the artificial flat. To do a better job, we suggest using the tool "Clone Stamp" or "Patch" to hide the nebulae and other objects of the deep sky in order to obscure them from the subsequent processing.

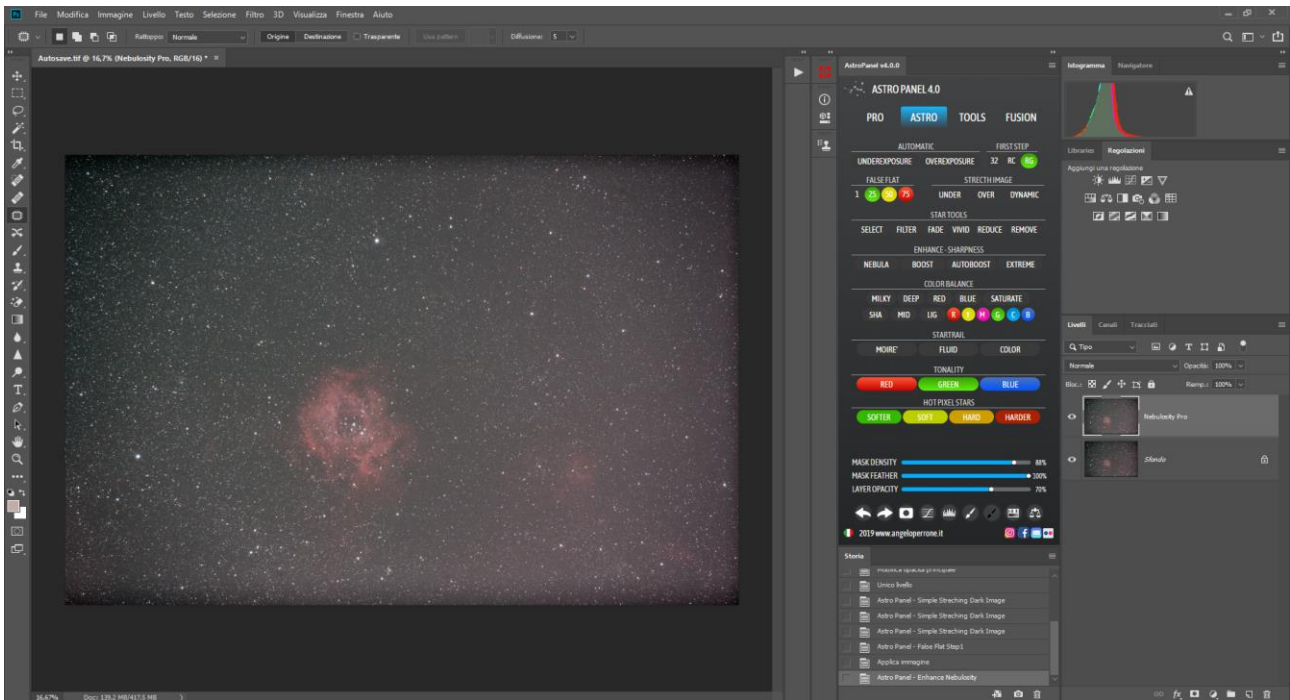


Once you mask the areas of the image we want to protect, click on the desired percentage. In our case, we executed the "50" command and so subtracted **50%** of the gradient that was present in the image.

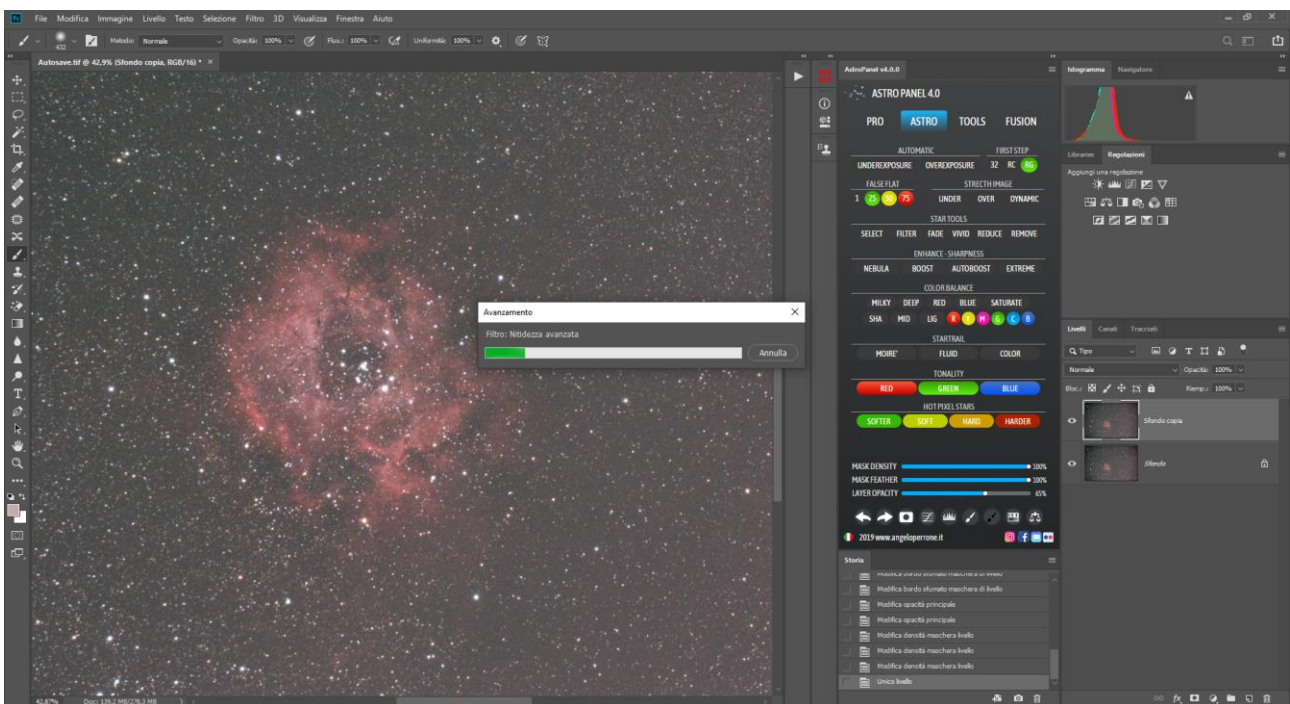


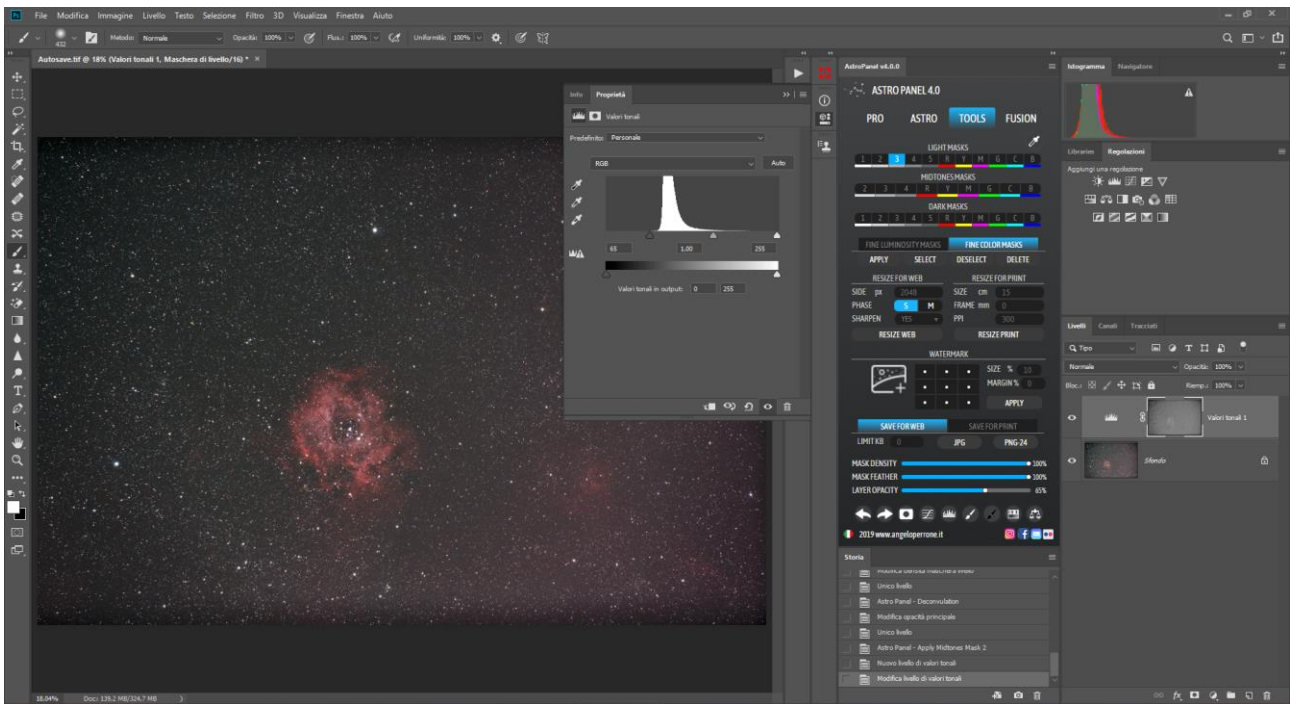
At this point we will try to extract even more signal and give depth to the nebula with the commands "**ENHANCE - SHARPNESS**". As explained in the previous chapter, with the command "**NEBULA**" we can reduce the diameter of the stars and the nebulosity of the image. This step can be skipped if you performed the "**FILTER**" on the stars. In addition, the "**NEBULA**" command takes a long time to complete and a fairly powerful PC / MAC.





From this point on, we will work on the Rosetta nebula to extract the detail and the dominant red color. We take out the fine detail with the command "**BOOST**" with the help of a white brush. With the command "**EXTREME**" (Deconvolution) we have the possibility to adjust the right compromise with the advanced sharpness. This technique is used a lot in astrophotography and is useful to reduce even the shake of astronomical images. See the image on the next page to see the effect of combining these commands.

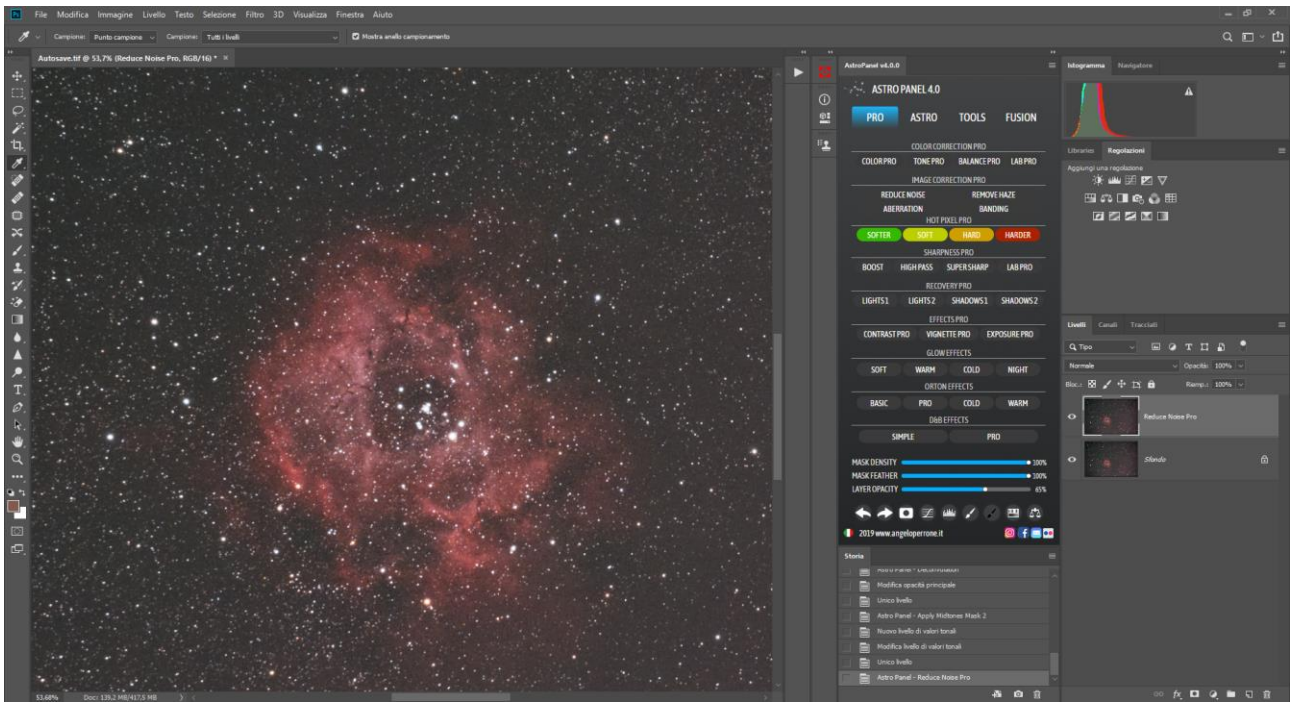




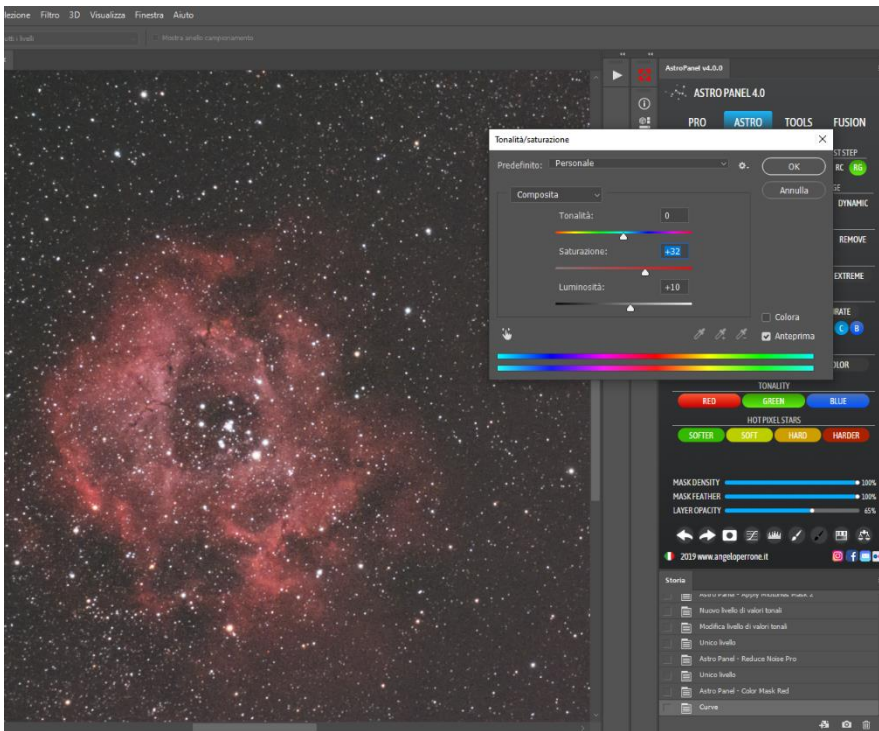
We can reduce the brightness with the help of midtones in the brightness masks. Through the "**Midtones2**" luminosity mask and the tonal values we can reduce the "haze" in the photo. We can achieve the same result also with the "**REMOVE HAZE**" command on the **PRO** board and adjusting the opacity of the layer.

The heavy postprocessing carried out so far can generate a percentage of digital noise. To correct this, we can use the "**REDUCE NOISE**" command on the **PRO** section. When we apply noise reduction the base level is duplicated and we can adjust the opacity of the effect.





Corrected the "defects" of the graphic elaboration we pass to correct the color. We have lots of color management features in Astro Panel, but color masks let us get the most out of our images.

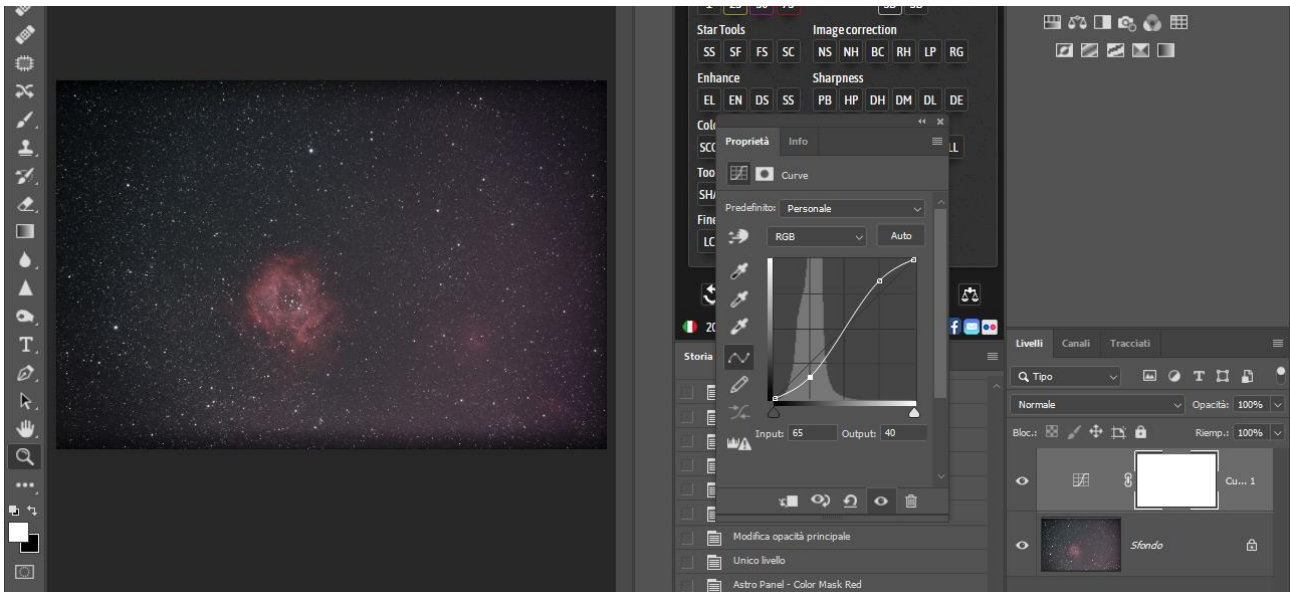


In our case, we can use the color mask "R - Red Mask Selection" of the "ASTRO" section that automatically selects the red color that is present in the nebula or use the dropper for brightness and color masks in real time from the "TOOLS" tab. After selecting the color mask, you can live up the color using the "Hue / Saturation" or "Curve" adjustments.

In the following image I worked with the saturation of the red color to make it more saturated and slightly bright.

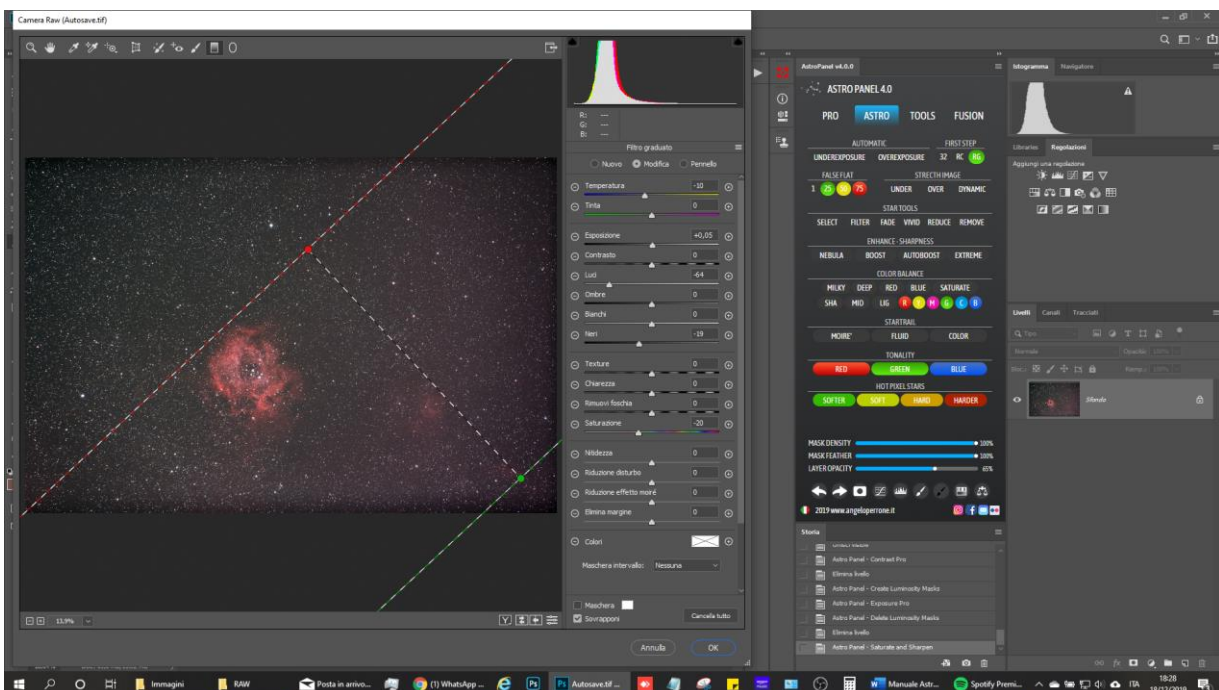


Apply this workflow with any color or brightness mask. You can also mask the areas of the image that are not of interest for the current modification with a black brush on the mask next to the layer.

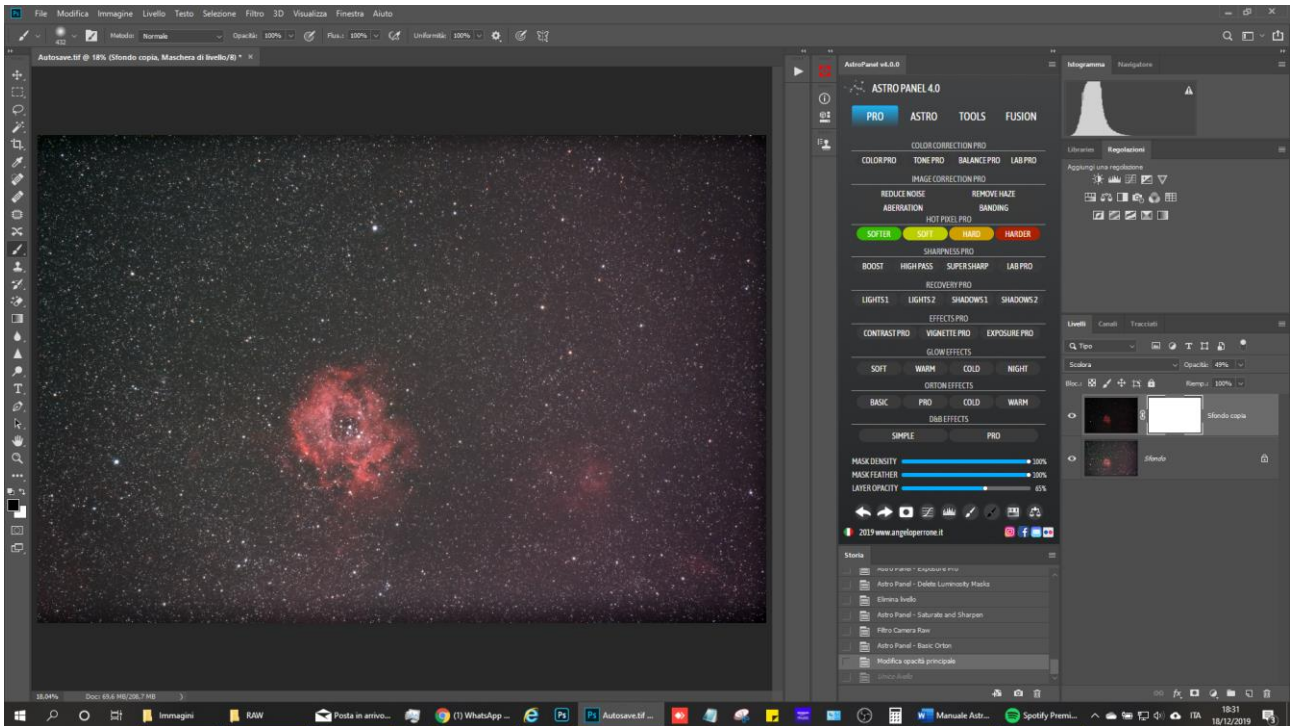


If the result is not satisfactory, on the right we have the command "SATURATE" which enlivens the colors in a very accentuated way and increases the detail.

As there is a bit of light pollution in our image, we open **Adobe Camera Raw** and try to reduce the light pollution in the lower right corner with just a few clicks. Through the graduated filter we can select the area where we want to reduce light pollution and set these parameters.



Once we are done with the processing let's move into the **PRO** tab to give a magic touch to our photo. Here we have commands like "**ORTON EFFECT**", "**GLOW EFFECT**", "**D&B EFFECT**" available to make the latest changes. Adjust the opacity of the effects to achieve the desired effect. The Orton effect is pleasant in deep sky images, so we will use one of the effects available to give the final touch to our elaboration.

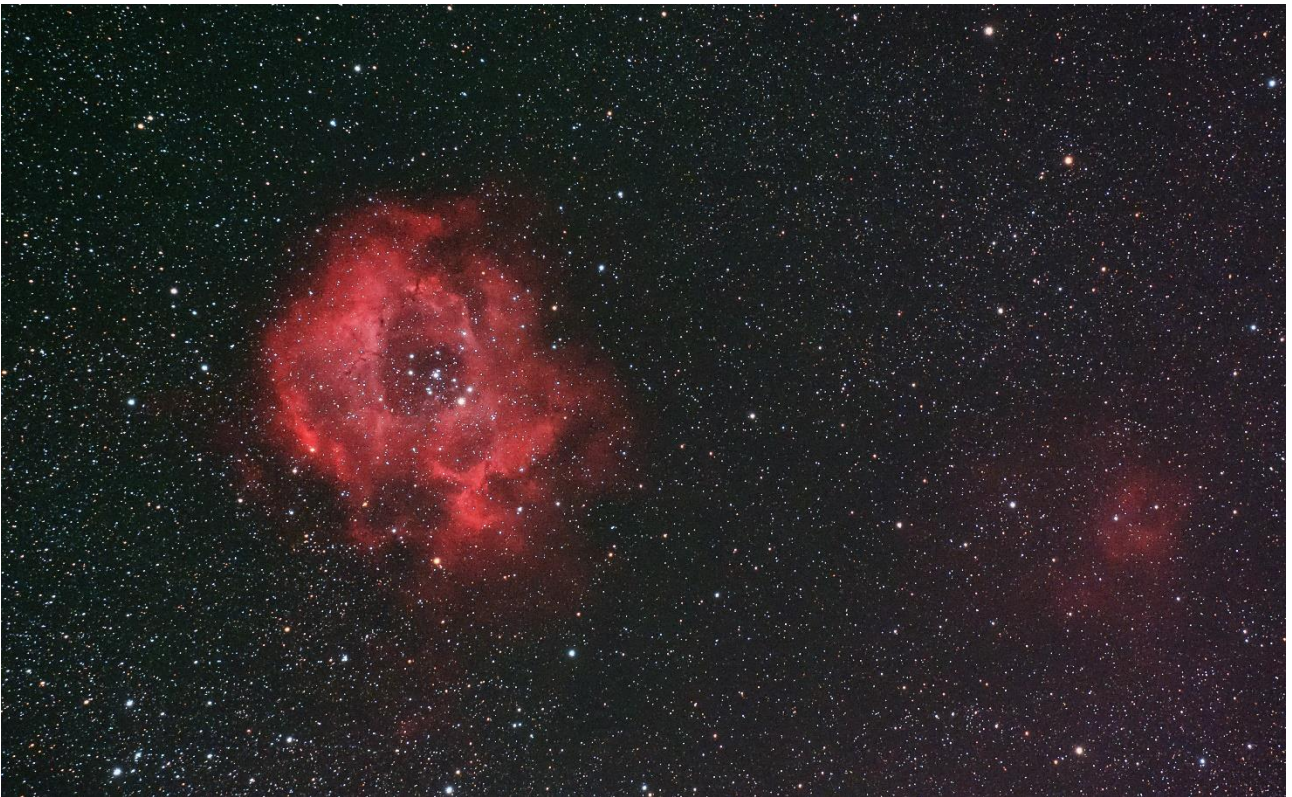


In just a few minutes and with the right controls we arrived at a satisfactory result without creating artifacts, maintaining a remarkable detail and correct colors. On the following page you can view the before and after of the image just processed.

Then proceed to **crop** the photo to eliminate portions of the image that do not interest us and also to exclude areas affected by light pollution. The latter is only a suggestion.

What we described in the tutorials is only a small part of the potential of Astro Panel. You can use the tutorials as a basis for your workflows to try to find the right combination of features and the right workflow.





All the material described in the guide is the property of Angelo Perrone Landscape Photographer. Reproduction, even partial, of images, texts or contents without authorization is prohibited.

Thanks for reading.

