WAAC Newsletter – September 2025

Wollongong Amateur Astronomy Club

Welcome from the Committee

September skies bring both celestial drama and deep-sky wonders. Observers in Wollongong will experience a stunning total lunar eclipse (Blood Moon), a delicate partial solar eclipse, and excellent planetary and deep-sky targets. With warmer spring evenings, it's the perfect time to share the night sky with family and friends.

Eclipses This Month

• Total Lunar Eclipse – 7–8 September 2025: Entirely visible from Wollongong, with totality lasting ~82 minutes from 03:30–04:52 AEST.
• Partial Solar Eclipse – 22 September 2025: A subtle pre-dawn eclipse around 05:46–05:52 AEST. Roughly 5% of the Sun will be covered. Use solar-safe filters only!

Planets at a Glance

Planet	Best Time (AEST)	Notes
Saturn	Evening until ~3 am	Excellent! Rings wide open, mag ~0.4
Jupiter	Rises near midnight	Bright at −2.5, moons align beautifully
Venus	Not visible	Lost in solar glare
Mars	Early evening, low W	Small, fading, challenging
Mercury	Pre-dawn mid-Sept	Low east, mag ~+0.5

Deep Sky Targets

• Lagoon Nebula (M8, Sagittarius) – Bright nebula with dark lanes, great with UHC filter.
• Trifid Nebula (M20, Sagittarius) – Red and blue regions split by dust lanes.
• Helix Nebula (NGC 7293, Aquarius) – Huge planetary nebula, the 'cosmic eye.'
• Tarantula Nebula (NGC 2070, LMC) – Giant stellar nursery, incredible in photos.
• Sculptor Galaxy (NGC 253) – Bright spindle galaxy, best after midnight.
• 47 Tucanae (NGC 104) – Stunning globular cluster near SMC.

• Omega Centauri – Still visible in early evening, but setting earlier.

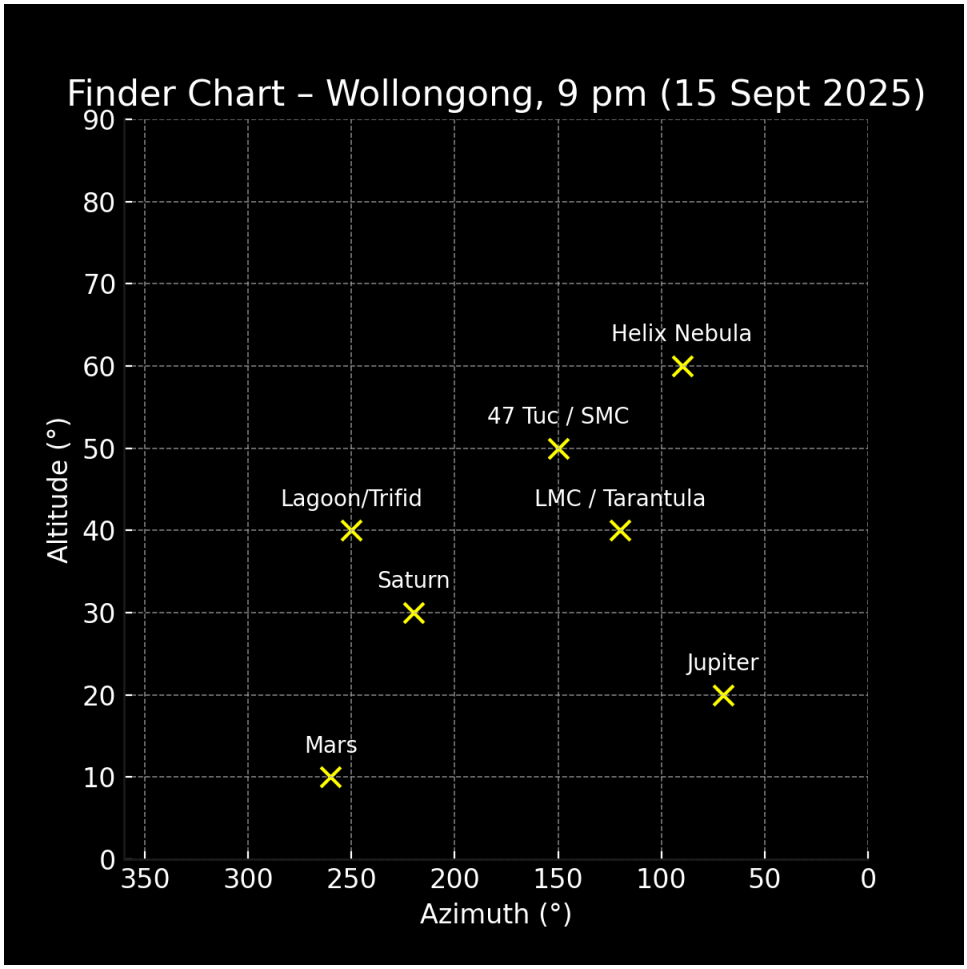
Meteors & Comets

• Piscids (Sept 8–9): Modest, ~5 meteors/hr, best after midnight.
• Southern Taurids (late Sept): Slow, bright fireballs.

• Comet C/2025 K1 (ATLAS): Estimated mag 11–12, binocular/imaging target.

Finder Chart

Key objects visible from Wollongong at 9 pm mid-September 2025.



Club Corner

Frogmore dark sky weekend 19-21 Sept 2025 (applications must be in ASAP)

Next dark-sky weekend: Sept 27–28 (New Moon). Possible outings at Dairy Farm (Albion Park) or Jerrara. Bring your binoculars, scopes, and filters — and don't forget to share eclipse photos for the October issue!

Contacts:
Joe Perulero – President (0479 188 381)
Jeff Pountney – Observation Officer (0423 972 181)

Expanded Deep Sky Targets – September 2025

In addition to the classic September objects, observers in Wollongong can enjoy a rich variety of southern gems. These are best observed around New Moon (29–30 Sept).

• Prawn Nebula (IC 4628): Bright emission nebula near Scorpius, glowing red in wide-field views.

• Carina Nebula (NGC 3372): Immense star-forming region, complex with dark lanes. Later evening highlight.

• Wishing Well Cluster (NGC 3532): Beautiful open cluster in Carina, binocular-friendly with colorful stars.

• Homunculus Nebula (Eta Carinae): Nebula surrounding Eta Carinae, turbulent and dramatic.

• Sculptor Galaxy (NGC 253): Elongated edge-on galaxy, filled with dust lanes.

• NGC 2362: Compact young open cluster, attractive even in small scopes.

• NGC 3918 (Blue Planetary): Small, bright planetary nebula glowing turquoise-blue.

• Coalsack Nebula: Dark nebula silhouetted against the Milky Way, beside the Southern Cross.

• NGC 55 (String of Pearls Galaxy): Irregular galaxy rising in Sculptor late Sept, elongated and pearly.

• 47 Tucanae (NGC 104): Magnificent globular cluster, peaks late September near the SMC.

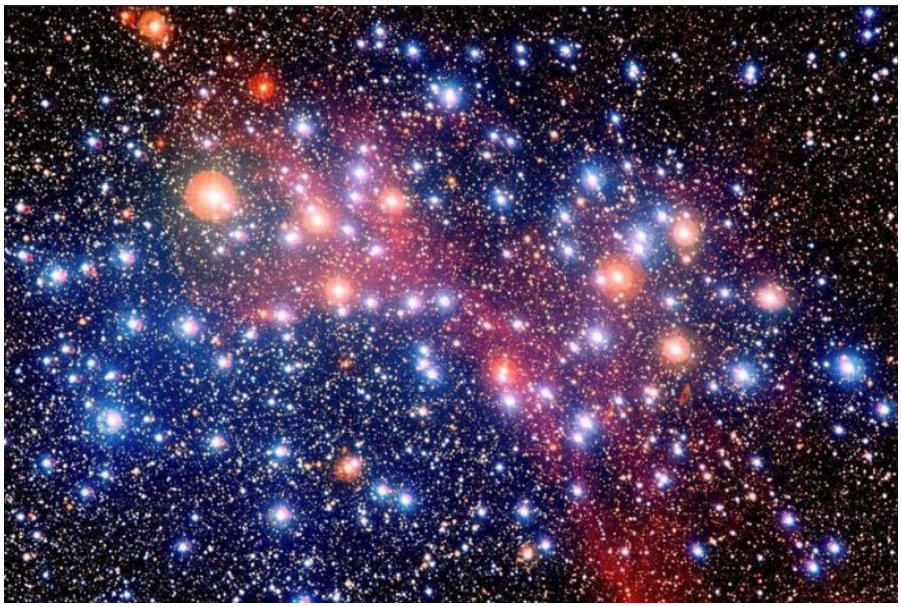
Example Images

On the next page are example images representing some of these deep-sky wonders:

Astrophotography Showcase – September Deep Sky Targets

Here are real astrophotography examples of some of September's southern deep-sky highlights:

Sculptor Galaxy (NGC 253): Starburst galaxy with prominent dust lanes.



Wishing Well Cluster (NGC 3532): Rich, colourful open cluster in Carina.

Astrophotography Showcase – Nebulae

Southern hemisphere skies in September also bring spectacular nebulae into view.

Prawn Nebula (IC 4628): Expansive emission nebula in Scorpius, glowing in hydrogen-alpha light.

Carina Nebula (NGC 3372): A vast star-forming complex hosting Eta Carinae and the Keyhole Nebula.

Image Sources & Credits

Use the links below to download high-quality, license-cleared images and insert them directly into the sections above. Each item includes the proper credit line and license.

• Prawn Nebula (IC 4628) — ESO VST (OmegaCAM)

Credit: ESO. Acknowledgement: Martin Pugh — License: CC BY 4.0 license

• Carina Nebula (NGC 3372) — ESO Colour Composite (eso0905a)

Credit: ESO — License: CC BY 4.0 license

• Sculptor Galaxy (NGC 253) — ESO MUSE/VLT (2025 release)

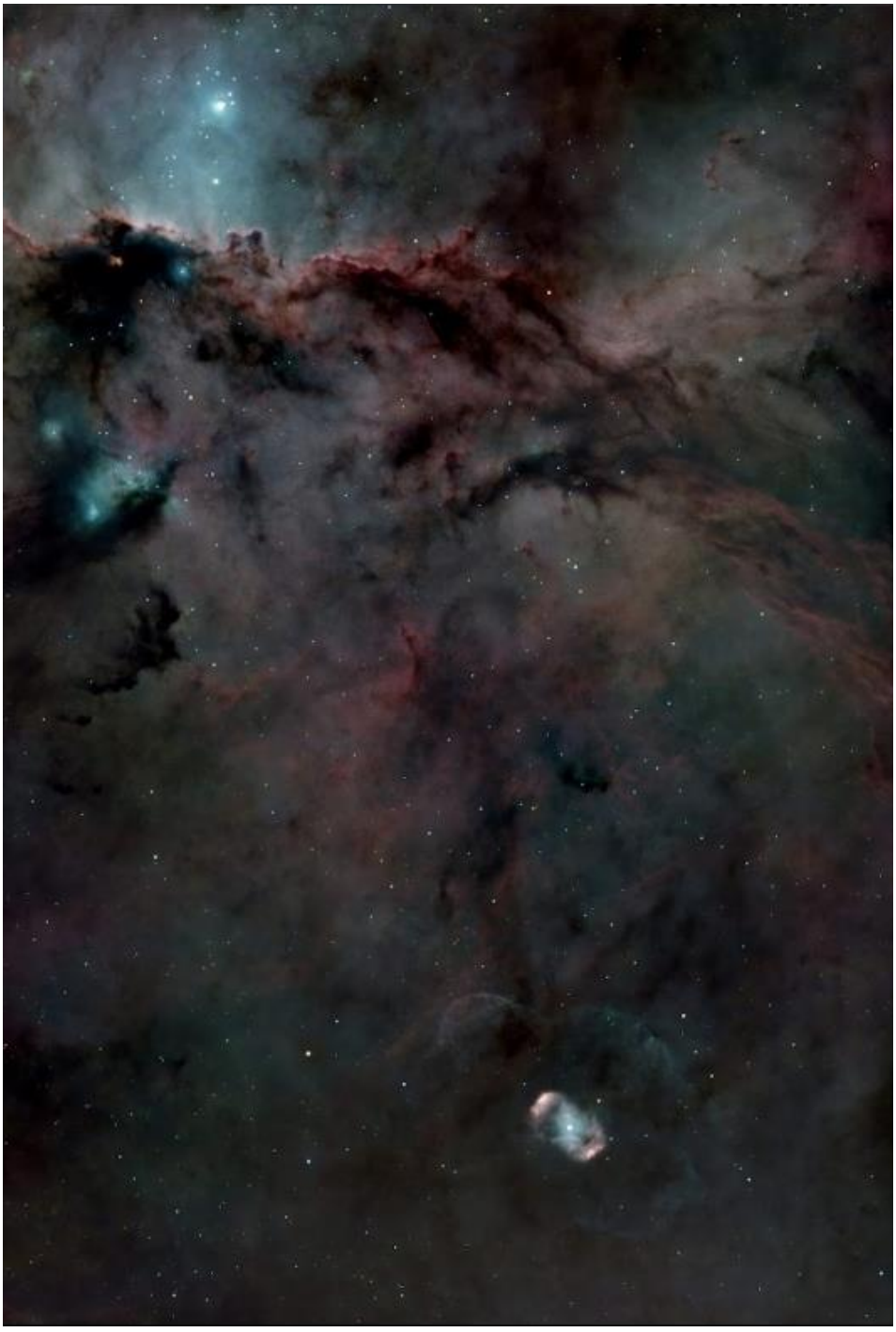
Credit: ESO/MUSE — License: CC BY 4.0 license

• Wishing Well Cluster (NGC 3532) — ESO/G. Beccari

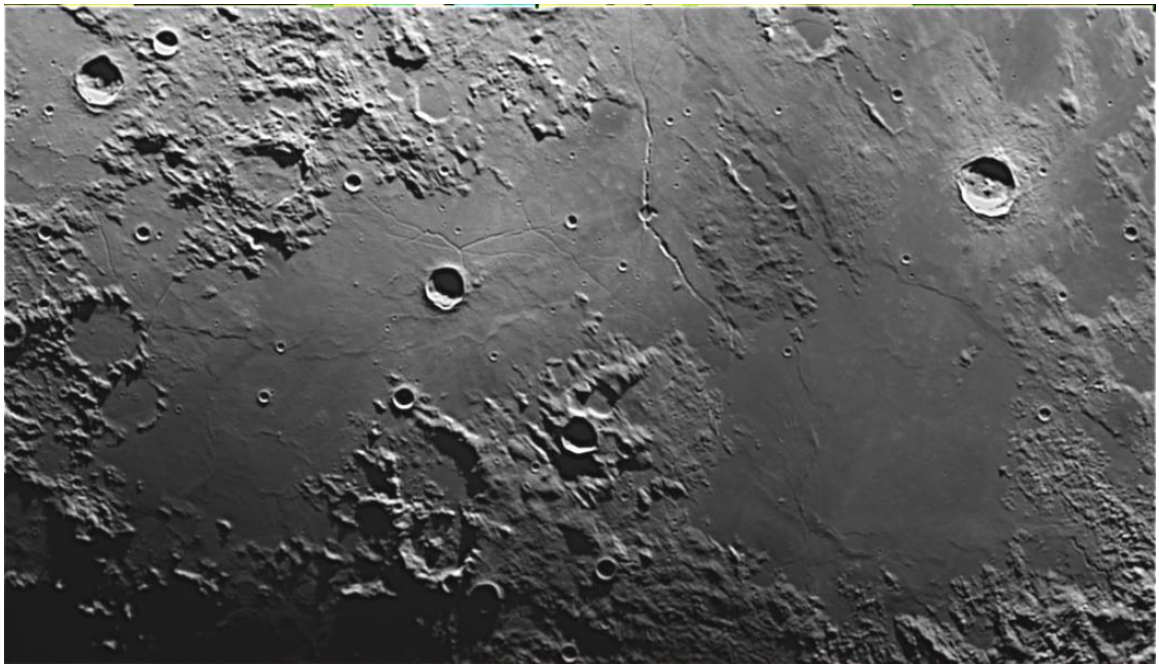
Credit: ESO/G. Beccari — License: CC BY 4.0 license

Astrophotography Showcase – IOTM August 2025 Comp

This section highlights real astrophotography images captured by WAAC amateur telescopes.



Petar Milevski – Dragons of ARA and Rim Nebula (Winner Aug 2025)



Jeff Pountney--Structures of the Moon.

Joe Perulero- The Helix Nebula

My One-Shot Color (OSC) Astrophotography Workflow

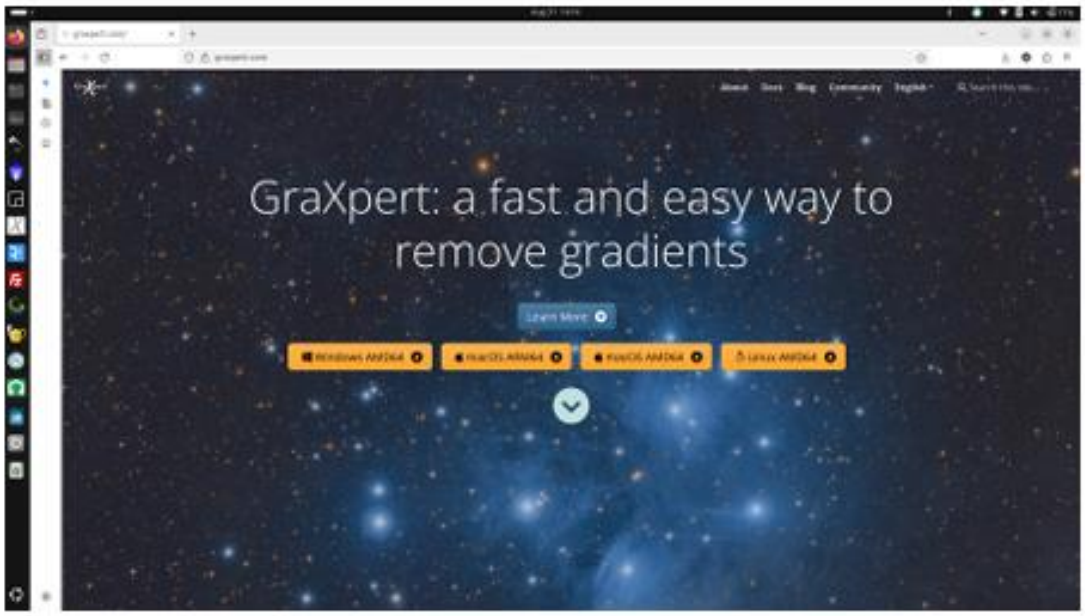
By Petar Milevski 31/8/2025

Introduction

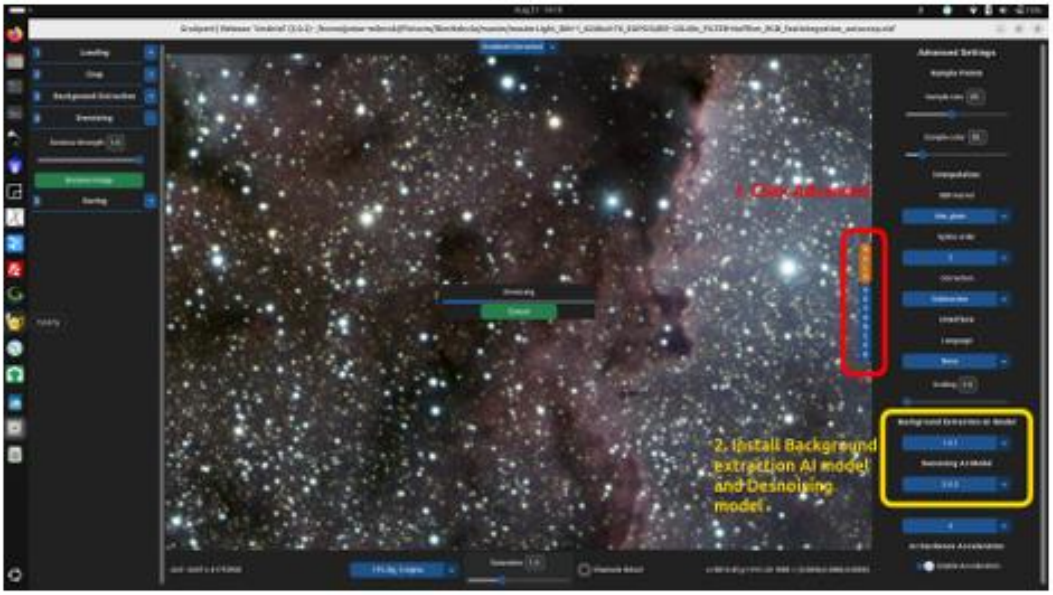
This report details a streamlined workflow for processing One-Shot Color (OSC) astrophotography images, focusing on the effective use of **GraXpert** for essential background extraction and noise reduction. The process begins with standard image stacking and concludes with final color adjustments to produce a high-quality astronomical image.

Workflow Steps

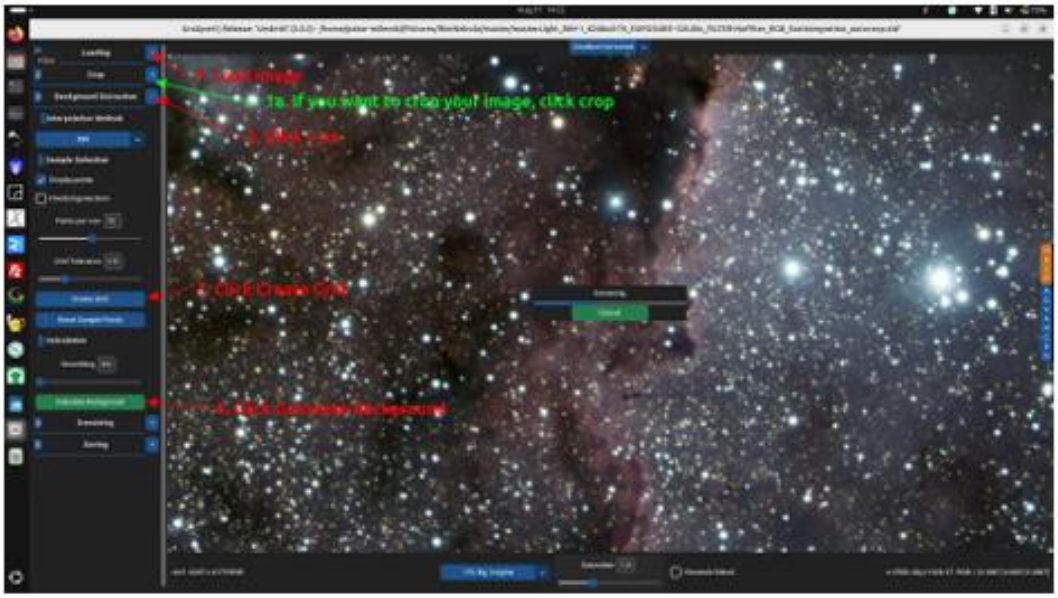
1. **Image Stacking:**
    - Begin by stacking your raw OSC images using your preferred software (e.g., PixInsight, Siril, DeepSkyStacker). This step integrates multiple exposures to enhance the signal-to-noise ratio and reduce random noise, producing a cleaner base image.
    - **(Optional)** At this stage, you can remove all the stars from your image using your favorite star extraction software such as StarNet2 or Star Exterminator for PixInsight. Then pass the starless image to GraXpert for denoising. Once denoising is done, you can add the stars back later with PixInsight or your favorite image processing software (eg Adobe, GIMP, etc).
2. **GraXpert Processing:**
    - Download and install GraXpert (https://graxpert.com/).



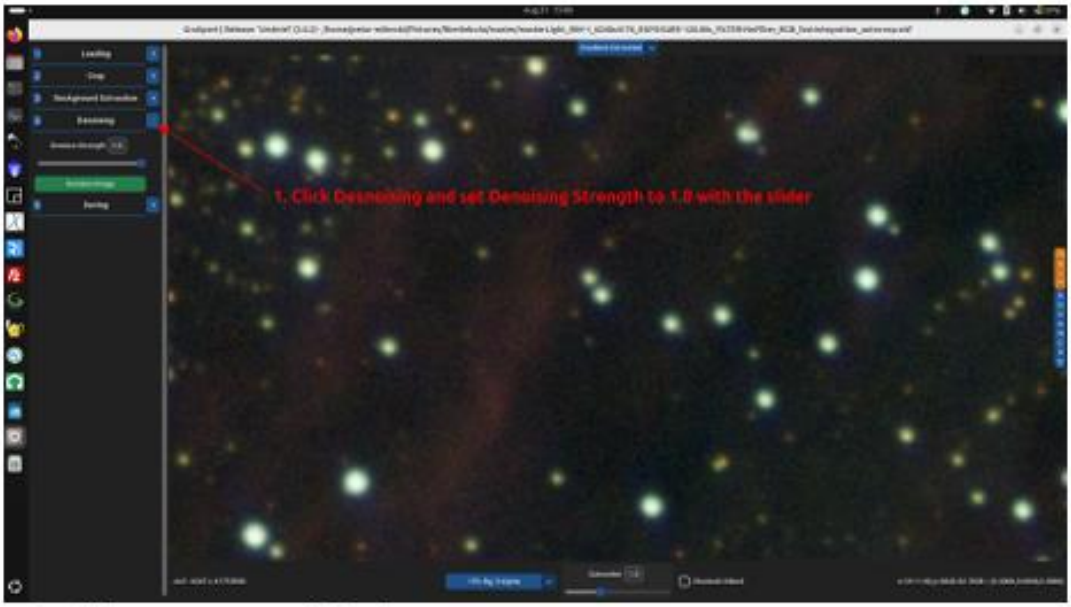
- Install the AI engines for B**ackground Extraction** and **Denoising,** by clicking the Advanced menu on the right hand side of the screen.



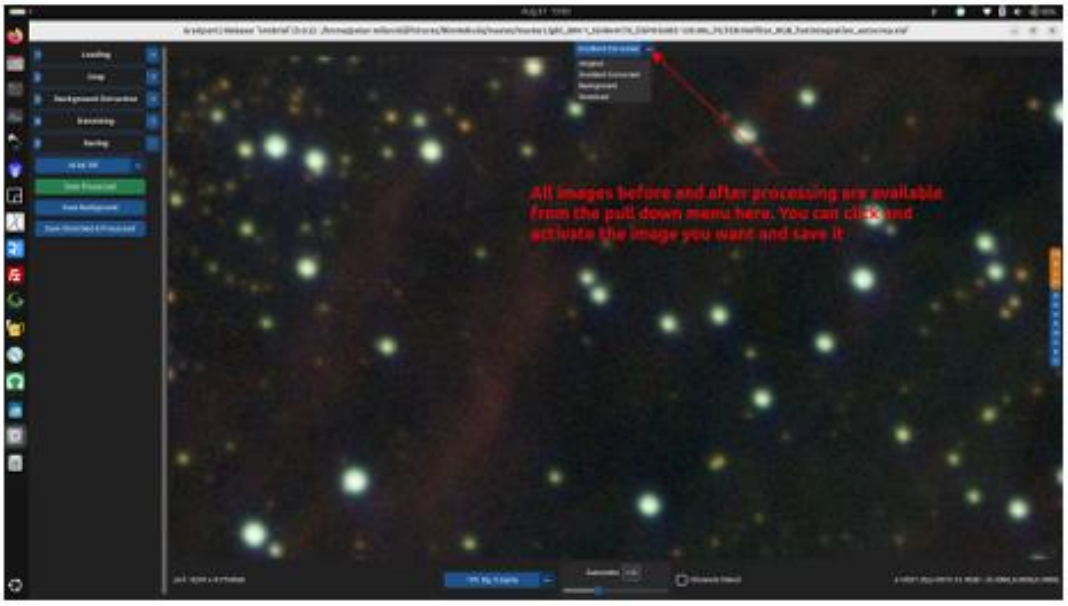
- Open the stacked image in GraXpert.
- Perform a **Crop** (as required)
- Click B**ackground Extraction** to remove light pollution gradients and uneven illumination.



- Apply **Denoising** to reduce image graininess while preserving celestial details.

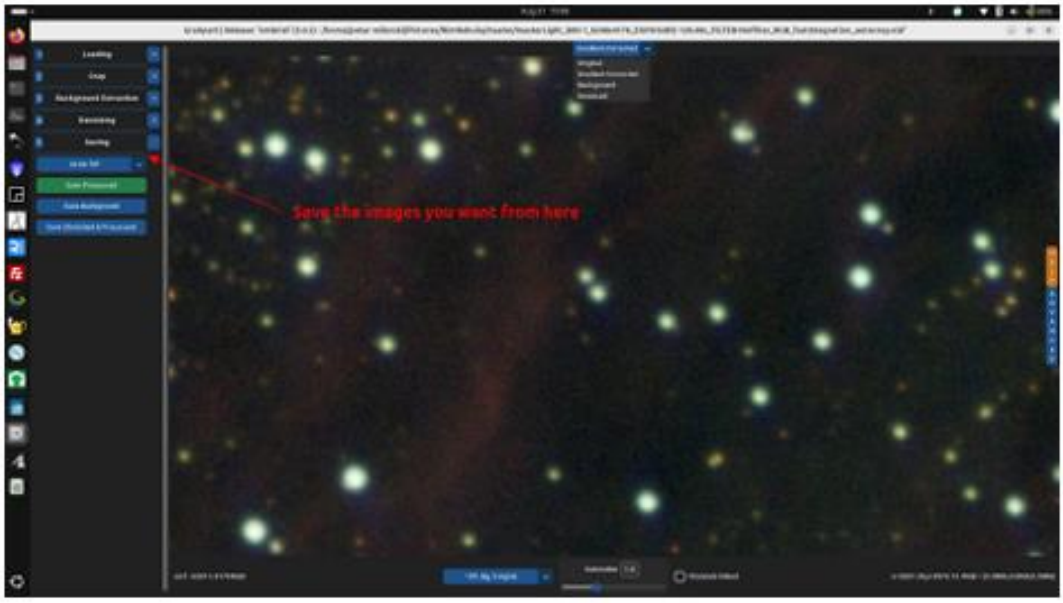


3. **All images are available here:**



4. **Save Processed Image:**

- Save the stretched image after background extraction and denoising.
- GraXpert gives you the option of saving an unstretched image (which you can then stretch with your favorite image processing software), or a stretched image.



5. **Color Refinement:**

- Optionally, use an image editor (e.g., Adobe Photo-shop, GIMP) for final color adjustments.

Illustrative Figures

Figure 1: Raw Stacked Image

This image represents the initial output after stacking multiple raw exposures. It often contains significant light pollution gradients and is generally dim due to the linear nature of astronomical data.

Figure 2: Background Corrected Image

Following background extraction in GraXpert, the image exhibits a cleaner, more uniform background. Gradients caused by light pollution or other atmospheric effects are significantly reduced, allowing the deep-sky objects to stand out more clearly. But the image is still noisy.

Figure 3: Zoomed in to see the noise

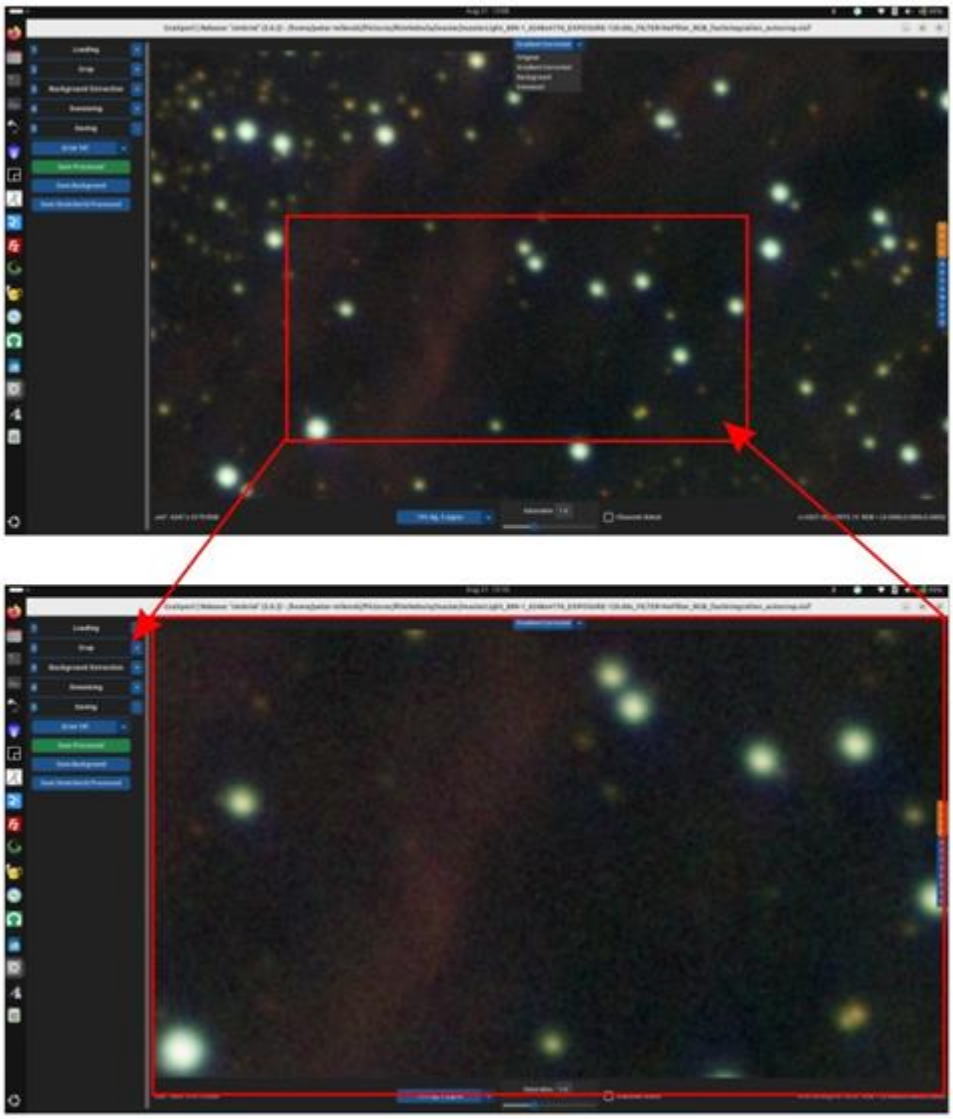


Figure 4: Same as Figure 3, noise eliminated

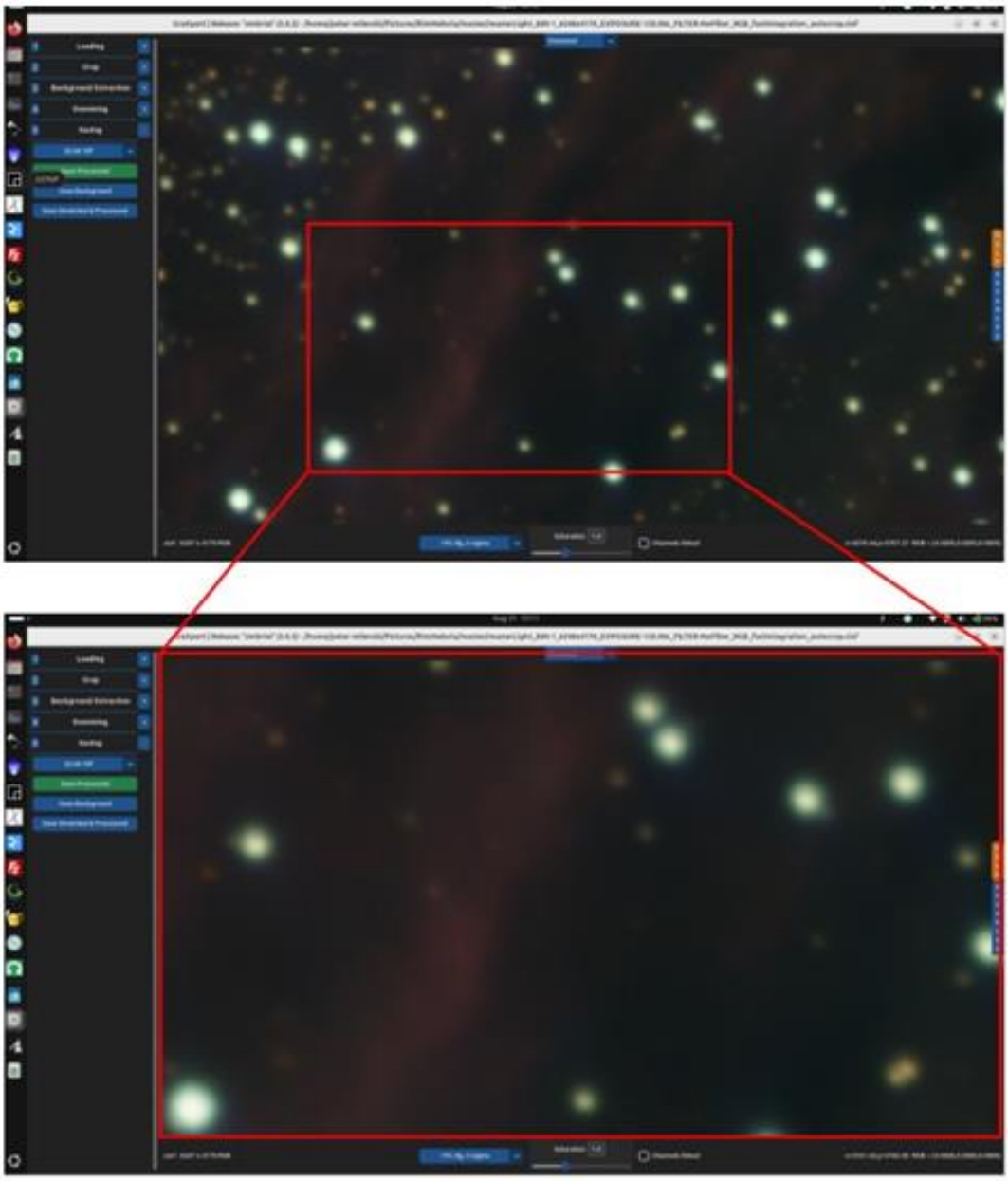


Figure 5: Final Image