Wollongong Amateur Astronomy — Galaxy Gazette

October 2025 • Southern Hemisphere • Wollongong, NSW

Welcome from the Committee

Hello everyone! October brings warm spring nights in the Illawarra with the Milky Way tilting westward and Orion rising in the east. This month offers fantastic views of the Orionids meteor shower, Jupiter and Saturn at their best, and crisp skies for deep-sky observing.

Astronomy Headlines (October 2025)

• Orionids meteor shower peaks ~Oct 21 — up to 20 meteors/hr under dark skies.
• Jupiter and Saturn dominate the evening sky — great for telescopes and imaging.
• Mars low in the west after sunset, Venus bright in the dawn sky.
• Southern galaxies such as the Sculptor Galaxy and Fornax Cluster well placed.
• The Magellanic Clouds high overhead with rich clusters and nebulae.

Planets & Moon — October at a Glance

Object	Best Time	Notes
Venus	Pre-dawn	Brilliant in the east before sunrise.
Jupiter	Evening–Overnight	Bright with moons visible in binoculars.
Saturn	Evening–Overnight	Rings clear; ideal for small telescopes.
Mars	Evening low W	Fading, low in twilight.
Mercury	Late October dawn	Low on horizon; needs clear air.
Moon	New Oct 6 / Full Oct 21	Best deep-sky window around New Moon.

Deep-Sky Targets — October 2025

• Orion Nebula (M42): rising earlier; a showpiece for all instruments.
• Helix Nebula (NGC 7293): still visible early evenings with O-III filter.
• Sculptor Galaxy (NGC 253): superb spiral, best in dark skies.
• 47 Tucanae + SMC: spectacular binocular pair.
• Fornax Cluster: faint galaxies challenge for larger scopes.

Meteor Activity (October)

• Orionids: active October 2–Nov 7, peak ~Oct 21; ~20 meteors/hour.
• Southern Taurids: low activity, visible late October nights.

Special Feature — SetiAstro Suite Tools

SetiAstro Suite is an integrated astrophotography toolkit offering automation, AI-based processing, and cross-platform utilities for amateurs and professionals. Here's a summary of its key modules and features from the presentation:

Slide 1

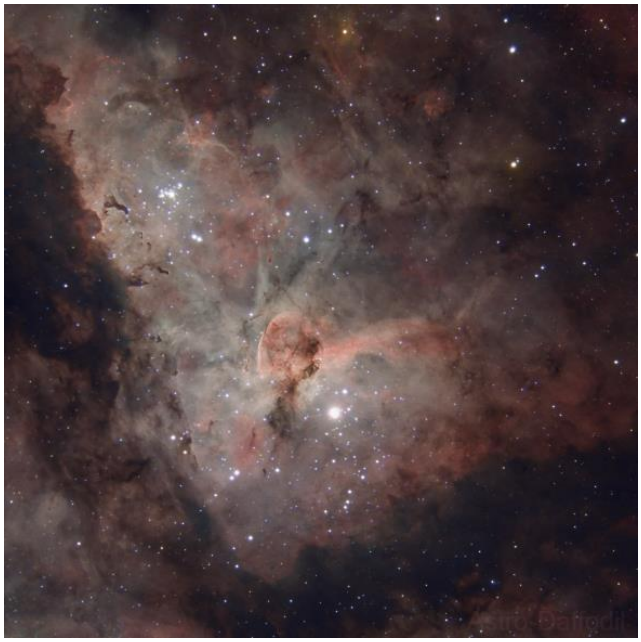
Overview of SetiAstro Suite Tools
An Introduction to the Modules & Utilities
By Joe Perulero

Slide 2

What Is SetiAstro Suite?
Integrated set of astrophotography tools
Standalone or with PixInsight
Cross-platform: Windows, Mac, Linux

Slide 3

Modules Overview
Automatic Background Extractor (ADBE)
Stacking Suite & Live Stacking
Cosmic Clarity Suite
PixInsight scripts & utilities



Slide 4

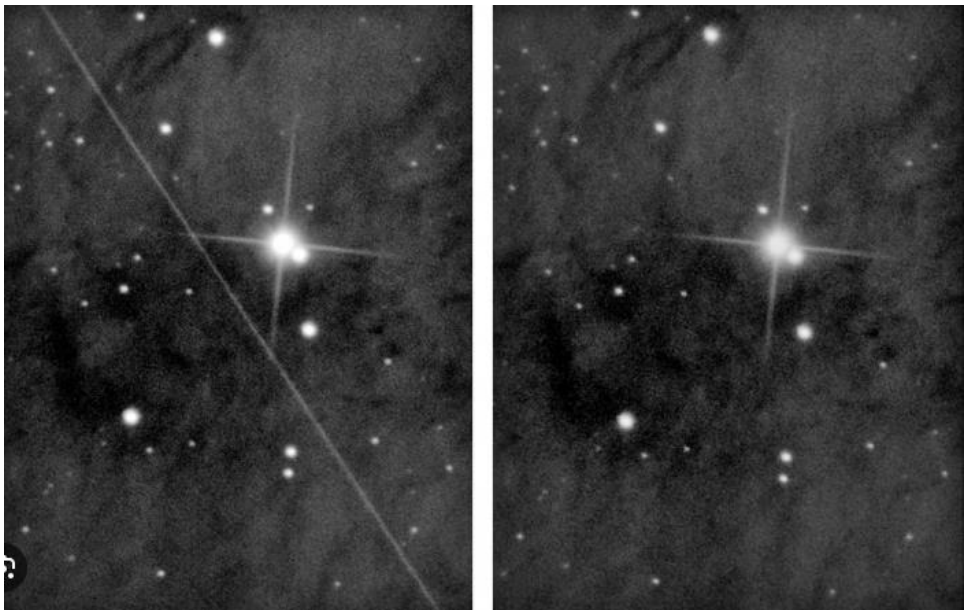
Automatic Background Extractor (ADBE)
Models and subtracts gradients
Flattens uneven backgrounds
Essential pre-processing step

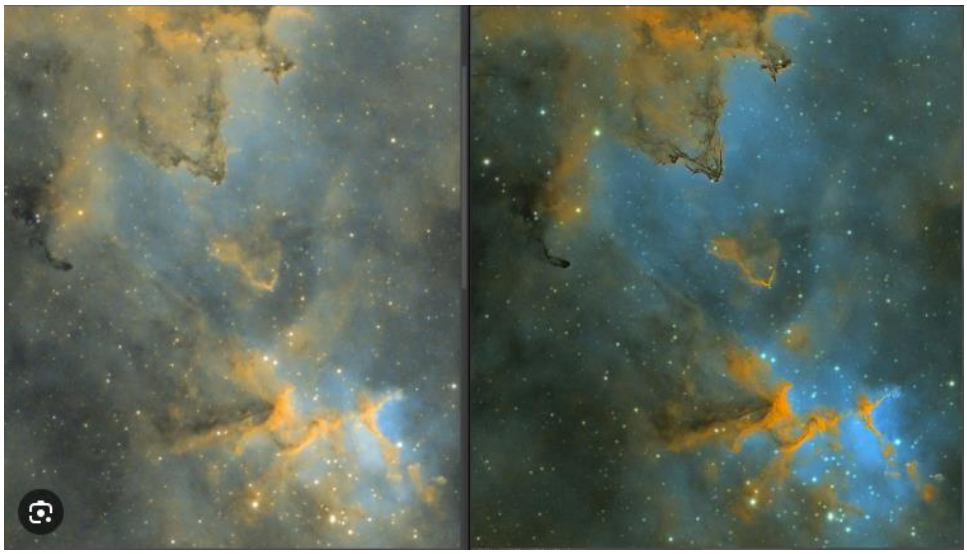
Slide 5

Stacking Suite & Live Stacking
Combines exposures for higher SNR
Supports live stacking
Includes auto-crop, plate solving

Slide 6

Cosmic Clarity Suite
AI sharpening, denoising
Satellite trail removal
Super resolution & dark star removal





Slide 7

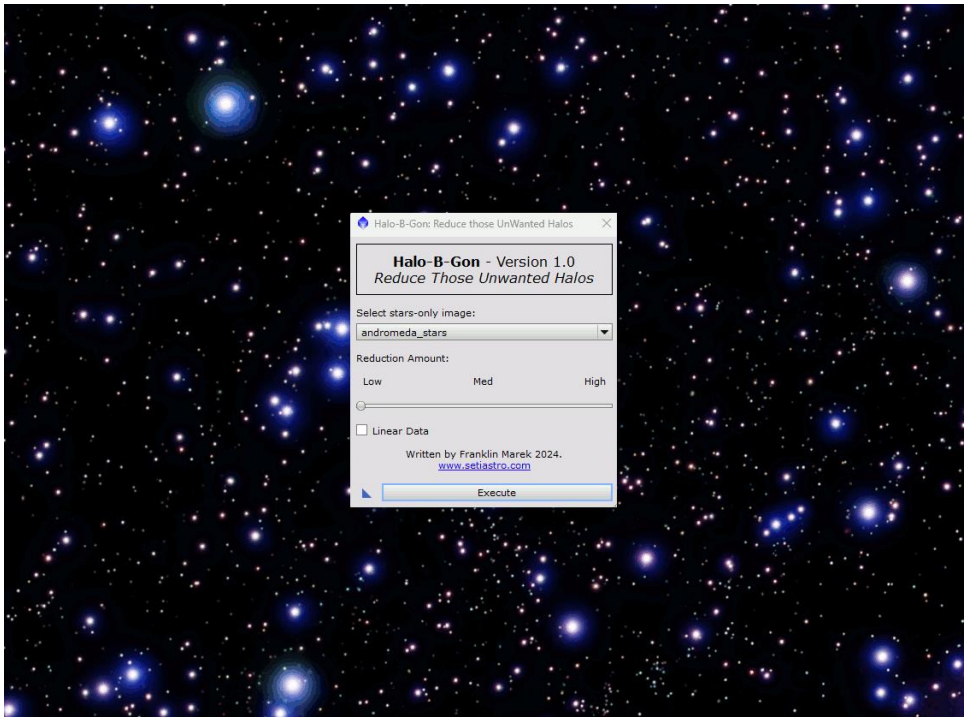
Star & Statistical Stretch
Star Stretch boosts color, reduces green cast
Statistical Stretch automates stretch parameters

Slide 8

NB to RGB Stars & Continuum Subtraction
NB to RGB Stars: combine Ha, OIII, SII
Continuum Subtraction isolates emission features

Slide 9

Halo-B-Gon & Blemish Blaster
Halo-B-Gon reduces bright star halos
Blemish Blaster removes artifacts
Mask Merge combines processing masks

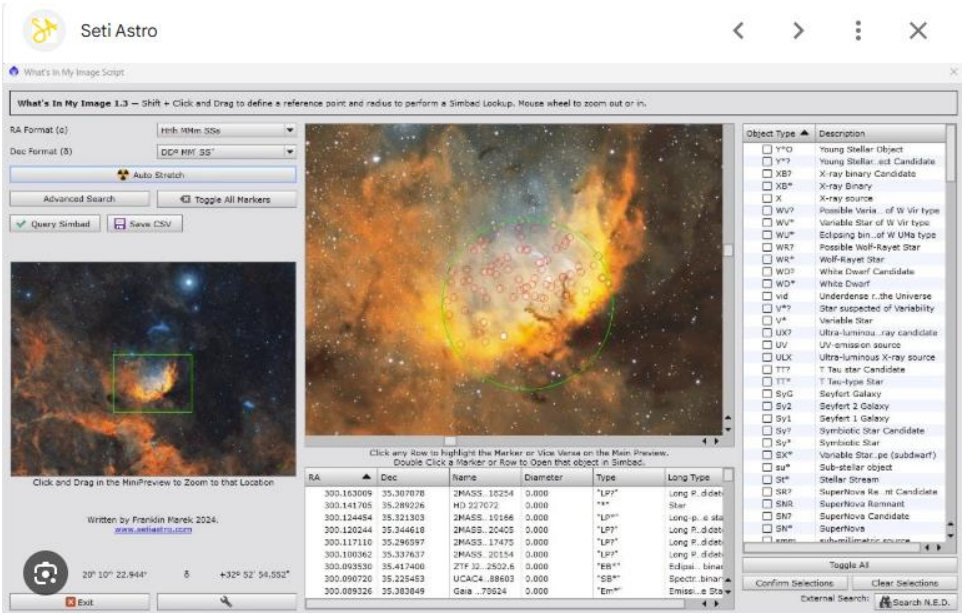


Slide 10

Comet stacking
New comet stacking features that make it hassle free

Slide 11

What's In My Image
Identifies objects using astrometric solutions
Blind solver
SIMBAD database integration
Useful for outreach/education



Slide 12

Palette Picker & Signature Tools
Perfect Palette Picker for optimal colors
Signature/watermark adder
Additional mask & mosaic utilities

Slide 13

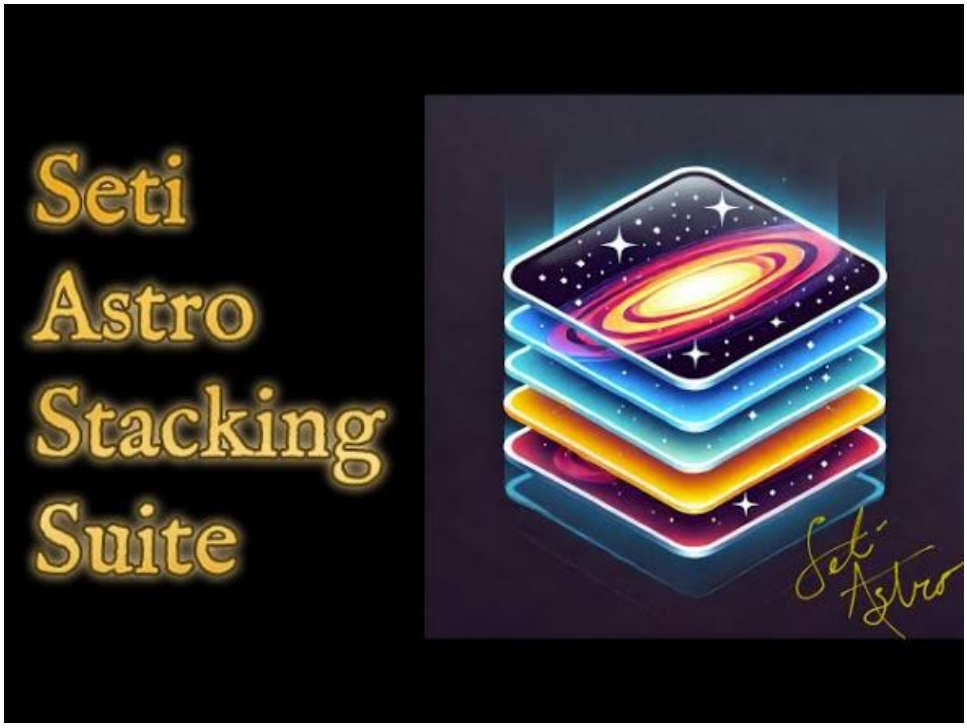
Integration & Workflow
Stack → Background extraction → Stretch
Merge stars/non-stars → Denoise → Final tweaks
Standalone or PixInsight integration

Slide 14

Updates & Pro Version
Constant updates on GitHub
SetiAstro Suite Pro with advanced automation
Cross-platform improvements

Slide 15

Benefits & Limitations
Benefits: automation, cross-platform, integrated tools
Limitations: some AV false positives, learning curve



Slide 16

Summary & Q/A
Recap: key modules & tools
Integrate into astrophotography workflow
Thank you!

Club Corner

Next dark-sky weekend: Oct 25–26 (New Moon). Location to be confirmed — possibly Albion Park or Jerrara. Bring binoculars or telescopes for Orionids and spring galaxy hunting. Share your sketches and astrophotos for the November issue!

Club Committee

Joe Perulero — President (0479188381)
Barry Munro — Treasurer
Graham Kettlewell — Secretary
Jeff Pountney — Observation Officer

Constellation Focus — Grus (The Crane)

Grus is a small but distinctive constellation in the southern sky, representing the crane. It was introduced by Dutch navigators Pieter Dirkszoon Keyser and Frederick de Houtman in the late 16th century and is one of the twelve constellations established by Johann Bayer in his Uranometria of 1603. Grus lies south of Pisces Austrinus and is best visible in the Southern Hemisphere during the spring months.

10 Notable Objects in Grus

• α Gruis (Alnair): The brightest star in Grus at magnitude 1.7, a hot blue-white star about 100 light years away.

• β Gruis: A variable red giant star, visible to the naked eye with an orange-red hue.

• δ Gruis: A wide binary system, with its primary star being a red giant.

• γ Gruis: A bright blue-white star, useful as a navigation marker in the southern skies.

• IC 5148 (Spare Tyre Nebula): A planetary nebula with a large apparent size, about 3000 light years away.

• NGC 7213: A Seyfert galaxy with an active nucleus, about 70 million light years distant.

• NGC 7424: A face-on barred spiral galaxy often called a 'miniature Milky Way', about 37 million light years away.

• IC 5201: A spiral galaxy seen nearly edge-on, located roughly 40 million light years away.

• NGC 7410: A barred spiral galaxy lying close to IC 5201 in the sky, both are popular imaging targets.

• NGC 7421: Another spiral galaxy in Grus, known for its asymmetric arms and bright core.

Grus is especially rich in galaxies, being part of the southern sky's so-called 'Grus Quartet'. For amateur observers, Alnair dominates the constellation, while those with larger telescopes can explore its diverse collection of galaxies and nebulae.

Observable Comets — October 2025 (Southern Hemisphere)

October offers several comets visible to observers in the Southern Hemisphere. While comet magnitudes are notoriously unpredictable, the following are expected to be within reach of amateur telescopes and binoculars under dark skies.

• C/2025 K1 (ATLAS): Brightening throughout October, currently magnitude 10–11. Best seen in the western sky after dusk. A good imaging target with a faint coma and tail visible in stacked photos.

• C/2023 A3 (Tsuchinshan–ATLAS): Now post-perihelion and fading, around magnitude 12–13. Visible late at night to early morning in the northern sky for Australia. Mostly a photographic target.

• C/2024 E1 (Wierzchos): A faint comet around magnitude 13, requiring 20–30 cm telescopes. Best attempted after midnight from dark sites. Shows a condensed core in long exposures.

• 29P/Schwassmann–Wachmann: A periodic comet prone to sudden outbursts. Usually around magnitude 12 but can brighten rapidly. Positioned in Aquarius this month; check recent updates before observing.

• 2P/Encke: Encke makes its regular return, visible in the morning sky late in October. Magnitude ~10, best attempted with binoculars or small scopes just before dawn.

Tips: Use planetarium software or online resources (Skyhound, ALPO, aerith.net) for up-to-date positions. For imaging, try short exposures stacked to reveal faint tails. Look for a greenish tint, a signature of diatomic carbon emission (C_2).

Observing Guide — Comet C/2025 R2 (SWAN)

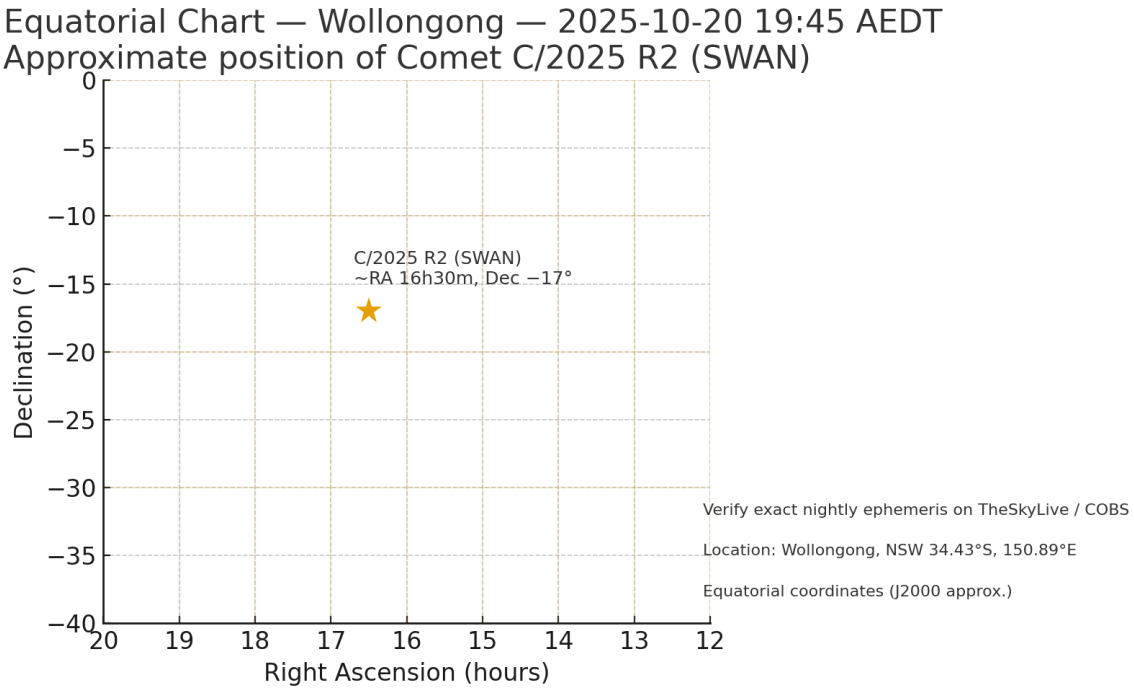
• **Best Dates**: Mid to late October 2025, with closest approach around October 20.
• **Time of Night**: Just after sunset, low on the western–southwestern horizon.
• **Equipment**: Visible in binoculars (7x50 or larger) under dark skies; telescopes will show more detail, including coma structure. A DSLR with a 50–135 mm lens can capture the comet and background stars.
• **Sky Location**: Moves from Virgo into Libra during October. Use bright stars such as Zubenelgenubi to star-hop.
• **Appearance**: Expect a small, condensed coma possibly with a faint greenish tint. A short tail may be visible in long exposures.
• **Tips**: Observe from a dark site with a flat horizon. Take multiple short exposures and stack them to reveal the tail. Re-check updated ephemerides before observing.

Sky Charts & Simulation — Comet SWAN (C/2025 R2)

Below are two visual aids to help observers locate and track Comet SWAN (C/2025 R2) in October 2025. The first chart shows its path against background stars and constellations, while the second is a simulated sky view from Wollongong for typical evenings in mid-October.

Custom Star Map — Wollongong • 20 Oct 2025 • 19:45 AEDT

Equatorial chart showing an approximate position of Comet C/2025 R2 (SWAN). Use live ephemeris (e.g., TheSkyLive / COBS) on the night to refine coordinates.



Horizon View — Wollongong • 20 Oct 2025 • 19:45 AEDT

Approximate horizon (Alt–Az) chart centered on the western sky. Use this to gauge height above the horizon; confirm exact position with a live ephemeris or planetarium app on the night.