
SEPT 2026
COOL
SPACE/COSMOLOGY/ASTROPHYSICS
NEWS

Nancy Grace Roman Space Telescope Roman telescope launched on August 30

Roman's destination is the L2 Lagrange point, a specific location 1.5 million kilometers (930,000 miles) from Earth that lies on the axis connecting the sun and Earth on the side of Earth facing away from the sun.

Key Objectives & Instruments

Wide Field Instrument (WFI): A 300-megapixel camera with a field of view 100 times larger than the Hubble Space Telescope to measure light from a billion galaxies.

Coronagraph Instrument: A advanced technology demonstrator designed to block out bright starlight using destructive interference, enabling direct imaging of faint exoplanets.

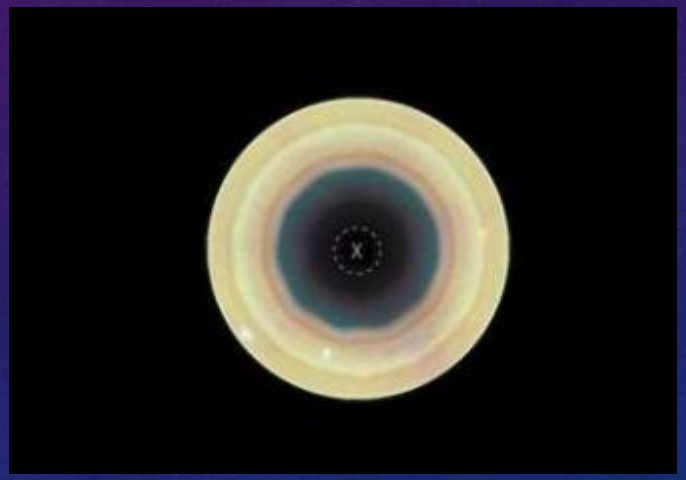
Cosmic Mysteries: Investigating dark energy, dark matter, and completing a statistical census of planetary systems in our galaxy.

Webb captures clearest image yet of the Lion Nebula

While more massive stars collapse at the end of their lives and shed their outer layers in an explosive event (a supernova), lower-mass stars that produce nebulae such as NGC 2392 (About 6,500 light-years away in the constellation Gemini) are different. When these stars exhaust their hydrogen and helium fuel, they become unstable and begin to pulsate, blowing off their outer layers in the process. The powerful radiation from the stellar remnant drives the ejected material away, leaving behind a white dwarf surrounded by a shell of gas and dust. This is how most observable dust in the universe is produced. The Lion Nebula spans approximately 250 to 260 light-years across.

Hubble tracks new decagon encircling Saturn's south pole

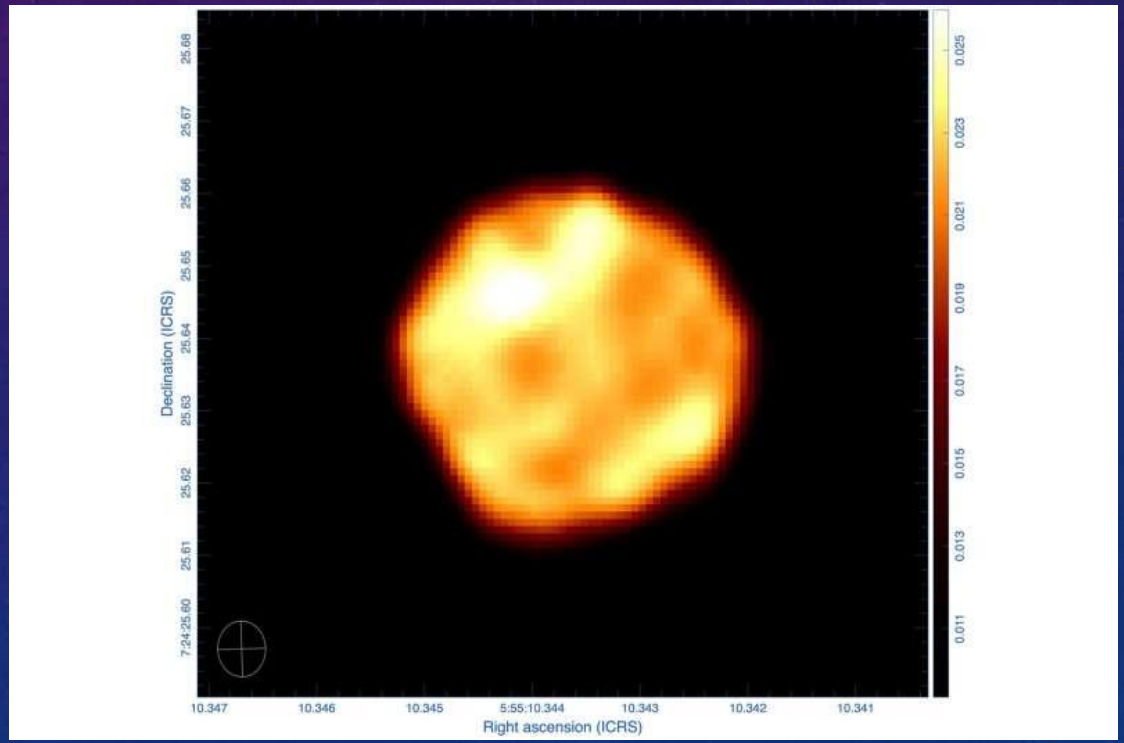
Recent observations with NASA's Hubble Space Telescope have revealed a giant, evolving, 10-sided atmospheric wave encircling Saturn's south pole. This discovery marks the first time a large, regular-sided jet pattern has been observed in the planet's southern hemisphere. The feature appears remarkably similar to Saturn's famous hexagon at its north pole but is also distinctly different, suggesting scientists may be witnessing a new atmospheric phenomenon developing on the iconic gas giant. The results are published in the journal *Science Advances*.



Betelgeuse's atmosphere is becoming spotty and asymmetric—and a nearby companion could be shaping the pattern

For the first time since its dramatic dimming in 2020, a team of astronomers has observed the inner atmosphere of Betelgeuse using the Atacama Large Millimeter Array (ALMA).

The astronomers observed Betelgeuse using ALMA, a facility made up of 66 radio telescopes in the Atacama Desert in Chile that produces images with extraordinarily high resolution. Led by Bill Dent at the University of Manchester, the team found that the giant star's inner atmosphere has become increasingly uneven and asymmetric, in a way that could be connected to a far smaller companion star. Published in Astronomy & Astrophysics, their results could ultimately reveal deeper insights into the dramatic changes taking place at the sky's 10th-brightest star as it approaches the end of its life.



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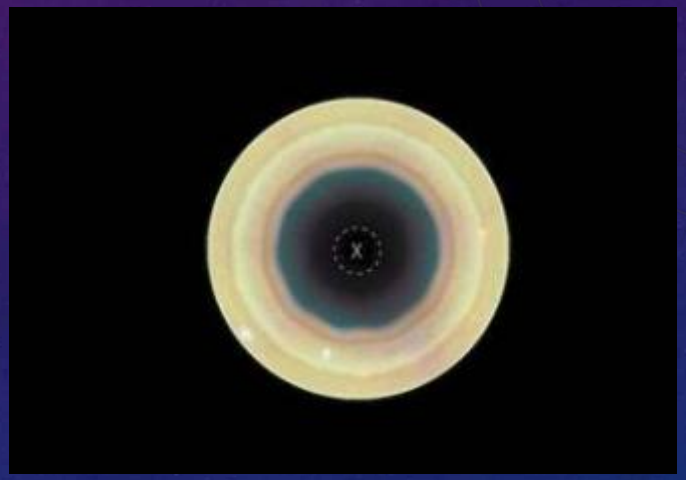


Researchers pinpoint key early-universe measurement with record precision

An international team, including researchers from the University of Minnesota Twin Cities, has reached a major milestone in "precision cosmology" by measuring the amount of helium created in the universe's first five minutes with unprecedented accuracy.

The series of five papers published in *The Astrophysical Journal* details how the team was able to leverage 130 hours of observation time on the Large Binocular Telescope to reduce the uncertainty of this fundamental cosmic value to just 0.5%—three times better than previous standards.

The Big Bang theory shows how the universe expanded from an extremely high-density and high-temperature state approximately 13.8 billion years ago. The theory rests on three pillars: expansion of the universe, cosmic microwave background and the abundance of light elements like helium and deuterium. The precise measurement not only confirms history but also provides a precise look at the Standard Model of Physics. By determining the exact amount of helium, the team was able to calculate the number of neutrino families—the lightest subatomic particles—present in the early universe.

BLACK HOLE STAR: ASTRONOMERS DISCOVER A BRAND-NEW TYPE OF ASTROPHYSICAL OBJECT

- Astronomers at MIT and elsewhere have spotted an extremely bright red spot in the early universe. The object resembles an enormous star, roughly the size of our solar system. But it also is putting out 100 billion times more energy than any known star can physically produce. In fact, such energies are closer to what a black hole might generate.
- The curious combination suggests that the red spot is an entirely new type of astrophysical source. The astronomers are calling it a "black hole star."
- In a paper appearing in the journal *Nature*, the team presents its analysis of the new object, which it discovered using NASA's James Webb Space Telescope (JWST). The telescope spotted the bright red dot in the very early universe, just a few hundred million years after the Big Bang.
- The scientists conclude that the most likely explanation for the strange red dot is that it is a mashup of a black hole and a star—a combination that has never been observed until now. The object is likely a hugely dense cloud of gas, powered not by standard nuclear fusion but by a central black hole.

What’s Up

<< August | September 2026 | October >>

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	31	1  Waning gibbous Visible: 80% ↓ Age: 19.14 days	2  Waning gibbous Visible: 71% ↓ Age: 20.19 days	3  Last quarter Visible: 60% ↓ Age: 21.25 days	4  **Last quarter** **Visible: 49% ↓** **Age: 22.32 days**	5  Last quarter Visible: 37% ↓ Age: 23.41 days
6  Waning crescent Visible: 27% ↓ Age: 24.50 days	7  Waning crescent Visible: 17% ↓ Age: 25.59 days	8  Waning crescent Visible: 9% ↓ Age: 26.69 days	9  Waning crescent Visible: 4% ↓ Age: 27.78 days	10  New Visible: 1% ↓ Age: 28.86 days	11  **New** **Visible: 1% ↑** **Age: 0.38 days**	12  New Visible: 3% ↑ Age: 1.42 days
13  Waxing crescent Visible: 7% ↑ Age: 2.42 days	14  Waxing crescent Visible: 13% ↑ Age: 3.39 days	15  Waxing crescent Visible: 20% ↑ Age: 4.34 days	16  Waxing crescent Visible: 29% ↑ Age: 5.26 days	17  First quarter Visible: 38% ↑ Age: 6.17 days	18  **First quarter** **Visible: 47% ↑** **Age: 7.06 days**	19  First quarter Visible: 56% ↑ Age: 7.95 days
20  First quarter Visible: 66% ↑ Age: 8.84 days	21  Waxing gibbous Visible: 75% ↑ Age: 9.74 days	22  Waxing gibbous Visible: 83% ↑ Age: 10.66 days	23  Waxing gibbous Visible: 90% ↑ Age: 11.59 days	24  Waxing gibbous Visible: 95% ↑ Age: 12.56 days	25  Full moon Visible: 99% ↑ Age: 13.55 days	26  **Full moon** **Visible: 100%** **Age: 14.56 days**
27  Full moon Visible: 100% ↓ Age: 15.60 days	28  Waning gibbous Visible: 96% ↓ Age: 16.66 days	29  Waning gibbous Visible: 91% ↓ Age: 17.74 days	30  Waning gibbous Visible: 83% ↓ Age: 18.82 days	1 	2 	3 

« September 2026 »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 Aurigid meteor shower 2026	2	3 Close approach of the Moon and M45	4 Moon at Last Quarter Venus at aphelion Lunar occultation of Beta Tauri	5
6 Conjunction of the Moon and Mars Close approach of the Moon and Mars The Moon at perigee	7	8 Close approach of the Moon and M44 Conjunction of the Moon and Jupiter Close approach of the Moon and Jupiter Lunar occultation of Jupiter	9 September ε-Perseid meteor shower 2026	10 Uranus enters retrograde motion New Moon	11	12 Conjunction of the Moon and Mercury
13 The Moon at perihelion	14 Conjunction of the Moon and Venus Close approach of the Moon and Venus Lunar occultation of Venus	15	16	17 Lunar occultation of Antares	18 Moon at First Quarter The Moon at apogee	19
20 Lunar occultation of Sigma Sagittarii	21	22 Venus at greatest brightness September equinox	23 The Moon at aphelion	24	25 NGC 55 is well placed Neptune at opposition	26 Full Moon
27 Close approach of the Moon and Saturn Mercury at aphelion Conjunction of the Moon and Saturn Daytime Sextantid meteor shower 2026 47 Tuc is well placed	28	29	30 Asteroid 192 Nausikaa at opposition Close approach of the Moon and M45			

The Moon is a 4 day-old waxing crescent, and is approaching first quarter. From Ajax, it is visible from soon after it rises, at 12:06, until soon before it sets at 21:03.

Rise 12:06
Set 21:03

10 Sep 2026 – New Moon
18 Sep 2026 – Moon at First Quarter
26 Sep 2026 – Full Moon
03 Oct 2026 – Moon at Last Quarter

Mercury recently passed behind the Sun at superior solar conjunction. From Ajax, it is not observable – it will reach its highest point in the sky during daytime and is no higher than 0° above the horizon at dusk.

Rise 08:14
Set 19:58

05 Aug 2026 – Mercury at highest altitude in morning sky
05 Oct 2026 – Mercury at highest altitude in evening sky
12 Oct 2026 – Mercury at greatest elongation east
20 Nov 2026 – Mercury at highest altitude in morning sky

Venus is visible as an evening object, having recently passed greatest elongation east. From Ajax, however, it is not observable – it will reach its highest point in the sky during daytime and is no higher than 5° above the horizon at dusk.

Rise 10:38
Set 20:25

14 Aug 2026 – Venus at greatest elongation east
09 Dec 2026 – Venus at highest altitude in morning sky
03 Jan 2027 – Venus at greatest elongation west
21 Mar 2028 – Venus at greatest elongation east

Mars is currently emerging from behind the Sun. From Ajax, it is visible in the dawn sky, rising at 01:35 (EDT) and reaching an altitude of 46° above the eastern horizon before fading from view as dawn breaks at around 06:09.

Rise 01:37
Set 16:51

23 Feb 2025 – Mars ends retrograde motion
10 Jan 2027 – Mars enters retrograde motion
19 Feb 2027 – Mars at opposition
19 Feb 2027 – Mars at perigee

Jupiter recently passed behind the Sun at solar conjunction. From Ajax, however, it is visible in the dawn sky, rising at 03:43 (EDT) – 3 hours and 9 minutes before the Sun – and reaching an altitude of 29° above the eastern horizon before fading from view as dawn breaks at around 06:34.

Rise 03:44
Set 18:03

10 Mar 2026 – Jupiter ends retrograde motion
12 Dec 2026 – Jupiter enters retrograde motion
10 Feb 2027 – Jupiter at opposition
12 Apr 2027 – Jupiter ends retrograde motion

Saturn is currently approaching opposition. From Ajax, it is visible in the morning sky, becoming accessible around 21:18, when it reaches an altitude of 10° above your eastern horizon. It will then reach its highest point in the sky at 02:28, 48° above your southern horizon. It will be lost to dawn twilight around 06:20, 24° above your western horizon.

Rise 20:16
Set 08:41

26 Jul 2026 – Saturn enters retrograde motion
04 Oct 2026 – Saturn at opposition
10 Dec 2026 – Saturn ends retrograde motion
09 Aug 2027 – Saturn enters retrograde motion

Uranus is currently emerging from behind the Sun. From Ajax, it is visible in the dawn sky, rising at 22:21 (EDT) and reaching an altitude of 67° above the southern horizon before fading from view as dawn breaks at around 05:43.

Rise 22:21
Set 13:22

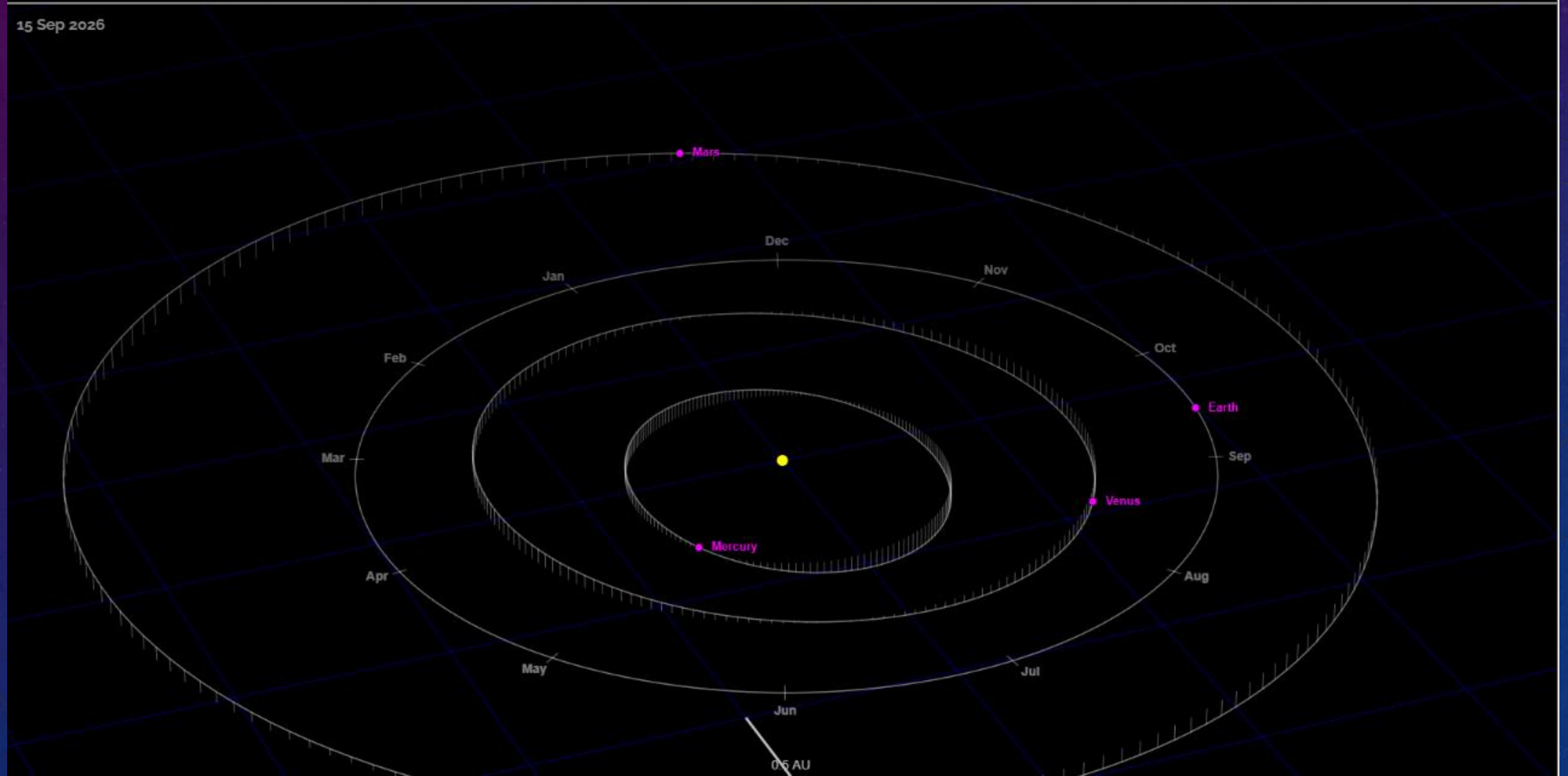
10 Sep 2026 – Uranus enters retrograde motion
25 Nov 2026 – Uranus at opposition
08 Feb 2027 – Uranus ends retrograde motion
15 Sep 2027 – Uranus enters retrograde motion

Neptune is currently approaching opposition. From Ajax, it is visible in the morning sky, becoming accessible around 21:58, when it reaches an altitude of 21° above your eastern horizon. It will then reach its highest point in the sky at 01:52, 46° above your southern horizon. It will be lost to dawn twilight around 05:43, 22° above your south-western horizon.

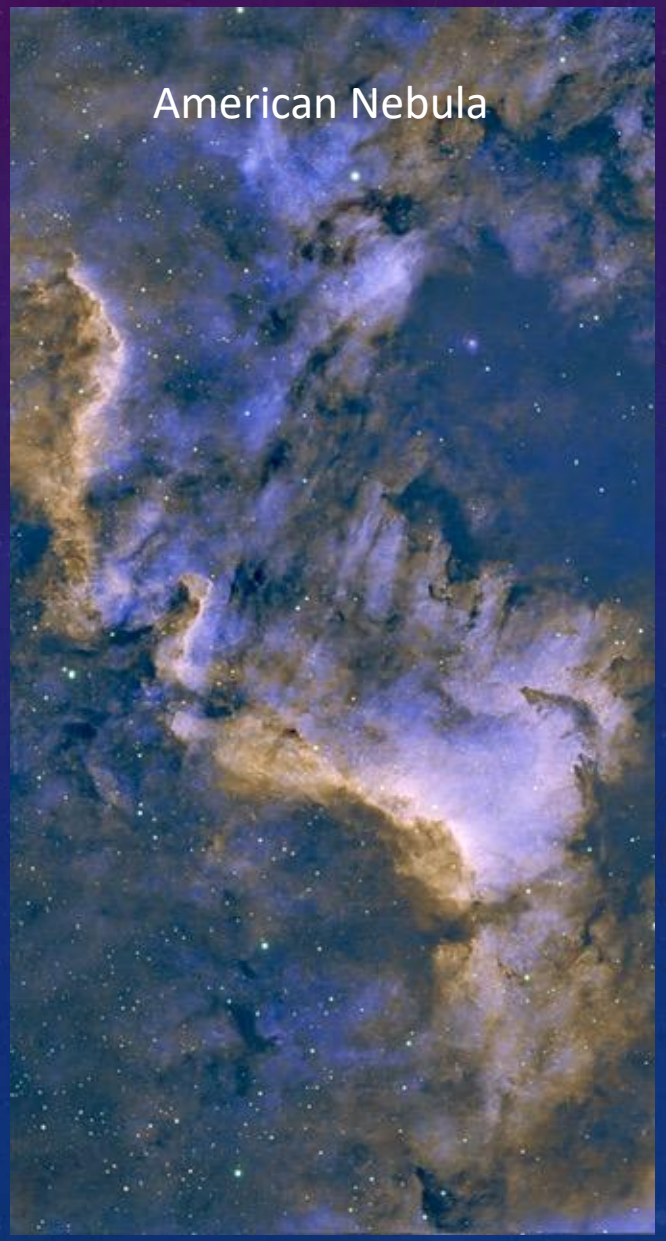
Rise 19:49
Set 07:54

07 Jul 2026 – Neptune enters retrograde motion
25 Sep 2026 – Neptune at opposition
12 Dec 2026 – Neptune ends retrograde motion
09 Jul 2027 – Neptune enters retrograde motion


Mars
Uranus
Jupiter
Sun
Saturn
Mercury
Venus
Moon
Opposition
Evening Sky
Daylight
Morning Sky


15 Sep 2026
Mars
Dec
Jan
Nov
Feb
Oct
Earth
Mar
Sep
Venus
Mercury
Apr
Aug
May
Jul
Jun
0.5 AU

Summer Seestar images



Shark Nebula

NGC 281

Latest Amateur Equipment News

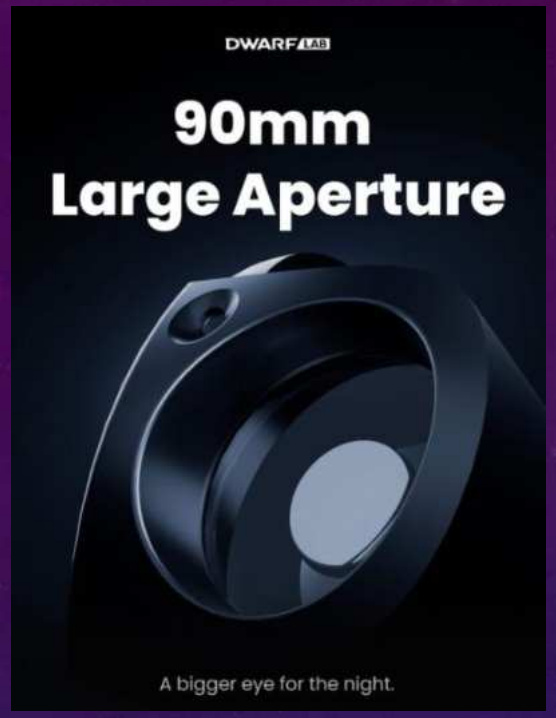
Seestar S50 Pro

$1300-$1400 (Available Now)

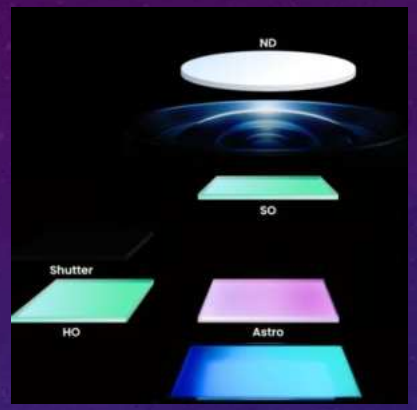
Model Comparison

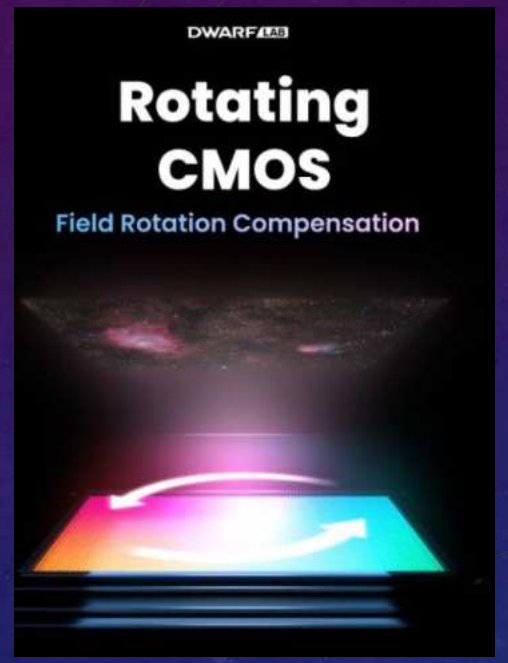
	S50 Pro	S50	S30 Pro
Sensor	Telephoto: 1/1.2 in (8.3 MP) Wide-Angle: 1/2 in (8.3 MP)	Telephoto: 1/2.8 in (2.0 MP) No Wide-Angle Camera	Telephoto: 1/1.2 in (8.3 MP) Wide-Angle: 1/2 in (8.3 MP)
Resolution	Telephoto: 2160 × 3840 Wide-Angle: 2160 × 3840	Telephoto: 1080 × 1920	Telephoto: 2160 × 3840 Wide-Angle: 2160 × 3840
Field of View	Telephoto: 2.8° Wide-Angle: 63°	Telephoto: 1.46°	Telephoto: 4.6° Wide-Angle: 63°
Optics	4-Element Apochromatic Lens	3-Element Apochromatic Lens	4-Element Apochromatic Lens
Aperture / Focal Length	50mm/260mm	50mm/250mm	30mm/160mm
Milky Way / Star Trail Imaging	Supported	Not Supported	Supported
Battery Capacity/ Runtime	10,000mAh/9h	6,000mAh/6h	6,000mAh/6h
Storage	128G	64G	128G
NFC	Supported	Not Supported	Supported
Focusing Range	15m~∞	30m~∞	10m~∞
Dimensions	140×149×268mm	142.5×130×257mm	140×80×210mm
Weight	2.8Kg	2.5Kg	1.65Kg

Dwarf Draco $2000-$2300 (Available November)



Two models
OSC and SHO





Specification	ZWO Seestar S50 Pro	Dwarflab Draco
Aperture	50 mm	90 mm
Focal Length	260 mm	340 mm
Focal Ratio	f/5.2 (approx.)	f/3.8
Camera Resolution	8.3 MP (main sensor)	12 MP output (50 MP binned sensor)
Sensor Cooling	No	Yes (Active cooling, below ambient)
Guiding / Exposures	Standard tracking (Alt-Az/EQ mode)	Built-in Off-Axis Guider (up to 300s/5-min exposures)
Secondary Camera	Yes (Wide-angle for landscape view)	Yes (Wide-angle secondary camera)
Field Derotation	Software / Mode based	Physical field derotation
Weight	2.8 kg (6.2 lbs)	5.5 kg (12.1 lbs)

Boundaries (2nd Try)