

# ESO Calendar 2024

European Southern Observatory





## Cover

The Vela supernova remnant imaged by the VLT Survey Telescope



This image shows a spectacular view of the orange and pink clouds that make up what remains after the explosive death of a massive star — the Vela supernova remnant. This detailed image consists of 554 million pixels, and is a combined mosaic image of observations taken with the 268-million-pixel OmegaCAM camera at the VLT Survey Telescope, hosted at ESO's Paranal Observatory.

Credit: ESO/VPHAS+ team. Acknowledgement: Cambridge Astronomical Survey Unit



## January

The Lupus 3 region in visible light



A dark cloud of cosmic dust snakes across this spectacular image, illuminated by the brilliant light of new stars. This dense cloud is a star-forming region called Lupus 3, where dazzlingly hot stars are born from collapsing masses of gas and dust. This image was created from images taken using the VLT Survey Telescope and the MPG/ESO 2.2-metre telescope.

Credit: ESO/R. Colombari



## February

Lore bids farewell to an ALMA antenna



One of the Atacama Large Millimeter/submillimeter Array (ALMA) antennas stands next to Lore, the ALMA transporter. Lore moves antennas between Chajnantor and the lower altitude Operations Support Facility for maintenance.

Credit: S. Otarola/ESO



## March

The Sh2-54 nebula in the infrared with VISTA



This image of the spectacular Sh2-54 nebula was taken in infrared light using ESO's VISTA telescope at Paranal Observatory in Chile. The clouds of dust and gas that are normally obvious in visible light are less evident here in the infrared, and we can now see the light of the stars behind the nebulae piercing through.

Credit: ESO/VVVX



## April

Venus over the BlackGEM telescopes



In this photograph, Venus is shining brightly over ESO's La Silla Observatory in Chile. The picture was taken just before dawn, towards the east, and also features the diffuse zodiacal light — sunlight scattered by dust particles in the Solar System.

The three domes to the left of the road are the BlackGEM telescopes, built by Radboud University, the Netherlands Research School for Astronomy (NOVA), and KU Leuven. BlackGEM searches for the afterglow of some of the most dramatic events in the Universe, such as the collisions of black holes and neutron stars.

Credit: Z. Bardón (bardon.cz)/ESO



## May

Jupiter imaged using the VISIR instrument on the VLT



In July 2016, as the NASA Juno spacecraft was about to arrive at Jupiter, astronomers used ESO's Very Large Telescope to obtain spectacular new infrared images of Jupiter using the VISIR instrument. The images were part of a campaign to create high-resolution maps of the giant planet to inform the work to be undertaken by Juno, helping astronomers to better understand the gas giant.

This false-colour image was created by selecting and combining the best images obtained from many short VISIR exposures at a wavelength of 5 micrometres.

Credit: ESO/L. Fletcher



## June

VLT's lasers and the stunning dark skies of the Atacama Desert



This photograph captures Unit Telescope 4 of ESO's Very Large Telescope, located in Chile's Atacama Desert, and its four-laser system, which is used to excite sodium atoms about 90 km up in the atmosphere. The atoms excited by the lasers emit light which is collected by the telescope at the same time as that of the stars. This emitted light is used by the adaptive-optics system to measure the distortions introduced by the atmosphere and then to correct for them. This advanced system, combined with the excellent dark-sky conditions of the Atacama Desert, ensures the telescope can obtain extremely sharp images.

Credit: ESO



## July

VISTA's view of NGC 3603 and NGC 3576



This picture shows a new view of NGC 3603 (left) and NGC 3576 (right), two stunning nebulae imaged with ESO's Visible and Infrared Survey Telescope for Astronomy (VISTA). This infrared image peers through the dust in these nebulae, revealing details hidden in optical images.

Credit: ESO/VVVX survey



## August

The ESO Supernova Planetarium & Visitor Centre



The ESO Supernova Planetarium & Visitor Centre, located at ESO Headquarters in Garching, near Munich, Germany, is a magnificent showcase of astronomy. It provides visitors with an immersive experience of astronomy in general, along with ESO-specific scientific results, projects, and technological breakthroughs.

Credit: ESO/P. Horálek



## September

An infrared view of the L1688 region in Ophiuchus



This image shows the L1688 region in the Ophiuchus constellation. New stars are born in the colourful clouds of gas and dust seen here. The infrared observations underlying this image reveal new details in the star-forming regions that are usually obscured by the clouds of dust. The image was produced with data collected by the VIRCAM instrument, which is attached to the VISTA telescope at ESO's Paranal Observatory in Chile. The observations were made as part of the VISIONS survey, which will allow astronomers to better understand how stars form in these dust-enshrouded regions.

Credit: ESO/S. Meingast et al.



## October

Night view of the ELT under construction on Cerro Armazones



This image shows a webcam view of the construction site of ESO's Extremely Large Telescope at Cerro Armazones, in Chile's Atacama Desert. At the time the photograph was taken, in June 2023, engineers and construction workers were assembling the structure of the telescope dome.

The starry background is dominated by the core of the Milky Way, our home galaxy, and the Large and Small Magellanic clouds, two dwarf galaxies that orbit our own.

Credit: ESO



## November

The IC4701 nebula



In this picture we take a deep plunge into the ocean of stars in the IC4701 nebula. This nebula is located in the Sagittarius constellation, and it is twice as wide as the full Moon in the sky. The energetic light from newly-born stars ionises the hydrogen gas in the nebula, causing it to emit the intense reddish hue seen in this picture. The dark clouds in this image contain large amounts of interstellar dust, too dense for the light of the background stars to pierce through it.

Credit: ESO/VPHAS+ team. Acknowledgement: Cambridge Astronomical Survey Unit



## December

Sunset over Cerro Paranal



Located high on the top of a Chilean mountain, ESO's Paranal Observatory benefits from stunning vistas of the surrounding Atacama Desert and — more importantly — clear and beautiful skies. This photograph of the site shows an especially colourful scene, as the setting Sun paints the sky with beautiful hues of pink, orange, purple, blue, and yellow.

Credit: P. Horálek/ESO



## ESO

European Southern Observatory



The European Southern Observatory (ESO) enables scientists worldwide to discover the secrets of the Universe for the benefit of all. We design, build and operate world-class observatories on the ground — which astronomers use to tackle exciting questions and spread the fascination of astronomy — and promote international collaboration in astronomy. An intergovernmental organisation supported by 16 Member States and two partner countries, ESO has headquarters in Germany and operates three observing sites in Chile.

Moon phases are indicated in Universal Time.

Produced by the ESO Department of Communication.

# 2024



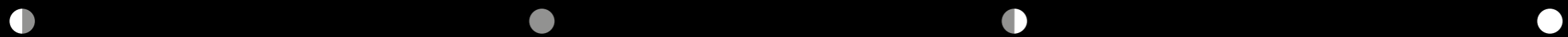




The Lupus 3 region in visible light

# January 2024

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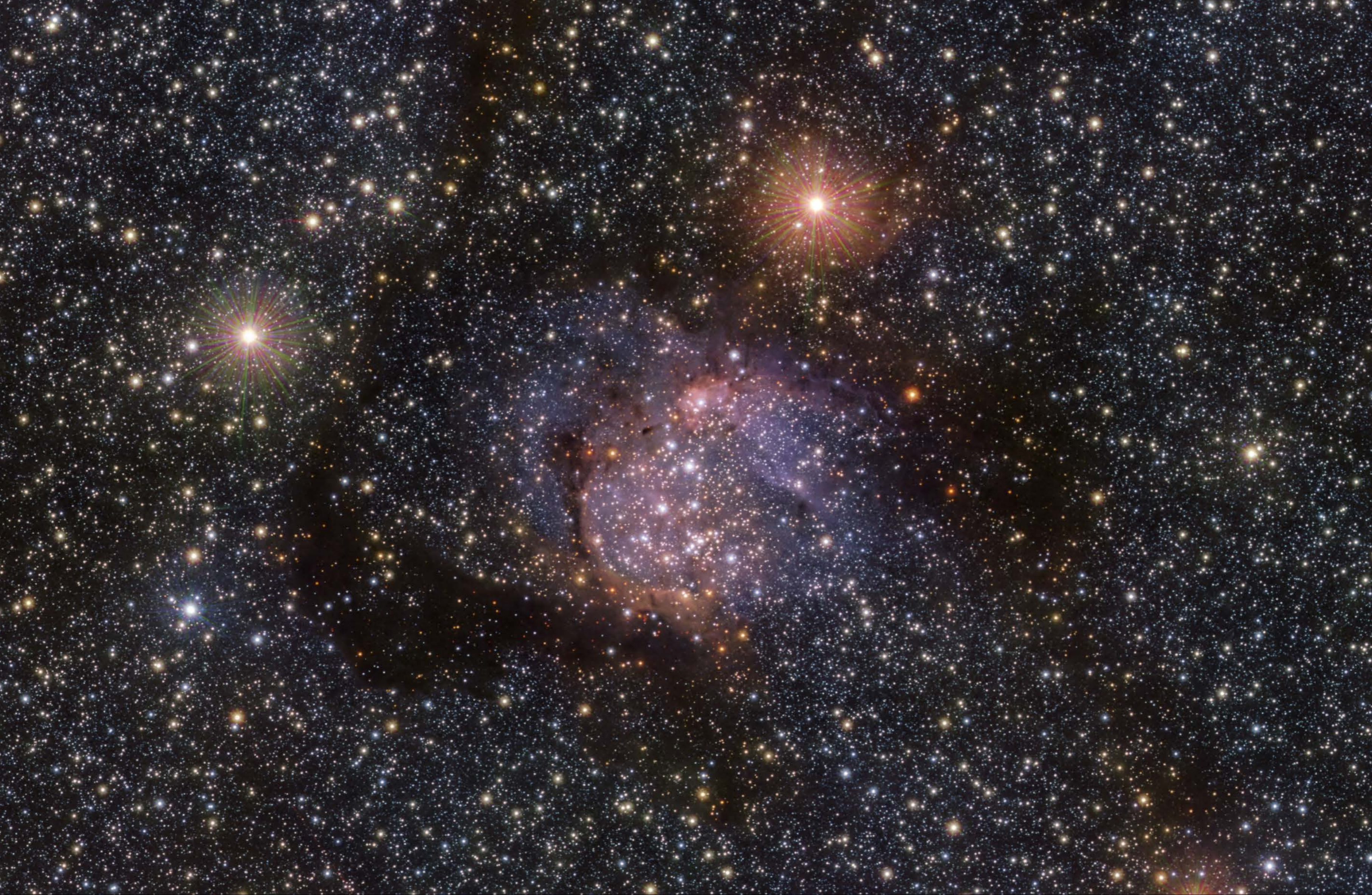
Lore bids farewell to an ALMA antenna

# February 2024

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The Sh2-54 nebula in the infrared with VISTA

# March 2024

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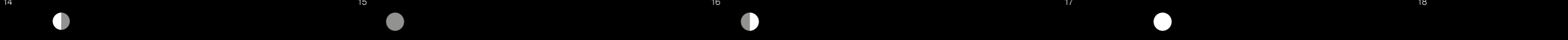




Venus over the BlackGEM telescopes

# April 2024

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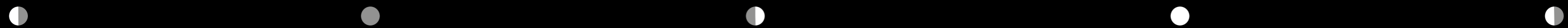




Jupiter imaged using the VISIR instrument on the VLT

# May 2024

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VLT's lasers and the stunning dark skies of the Atacama Desert

# June 2024

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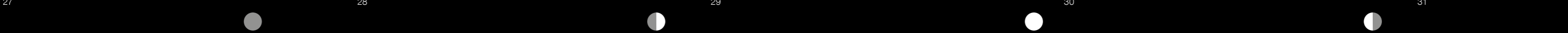




VISTA's view of NGC 3603 and NGC 3576

# July 2024

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The ESO Supernova Planetarium & Visitor Centre

# August 2024

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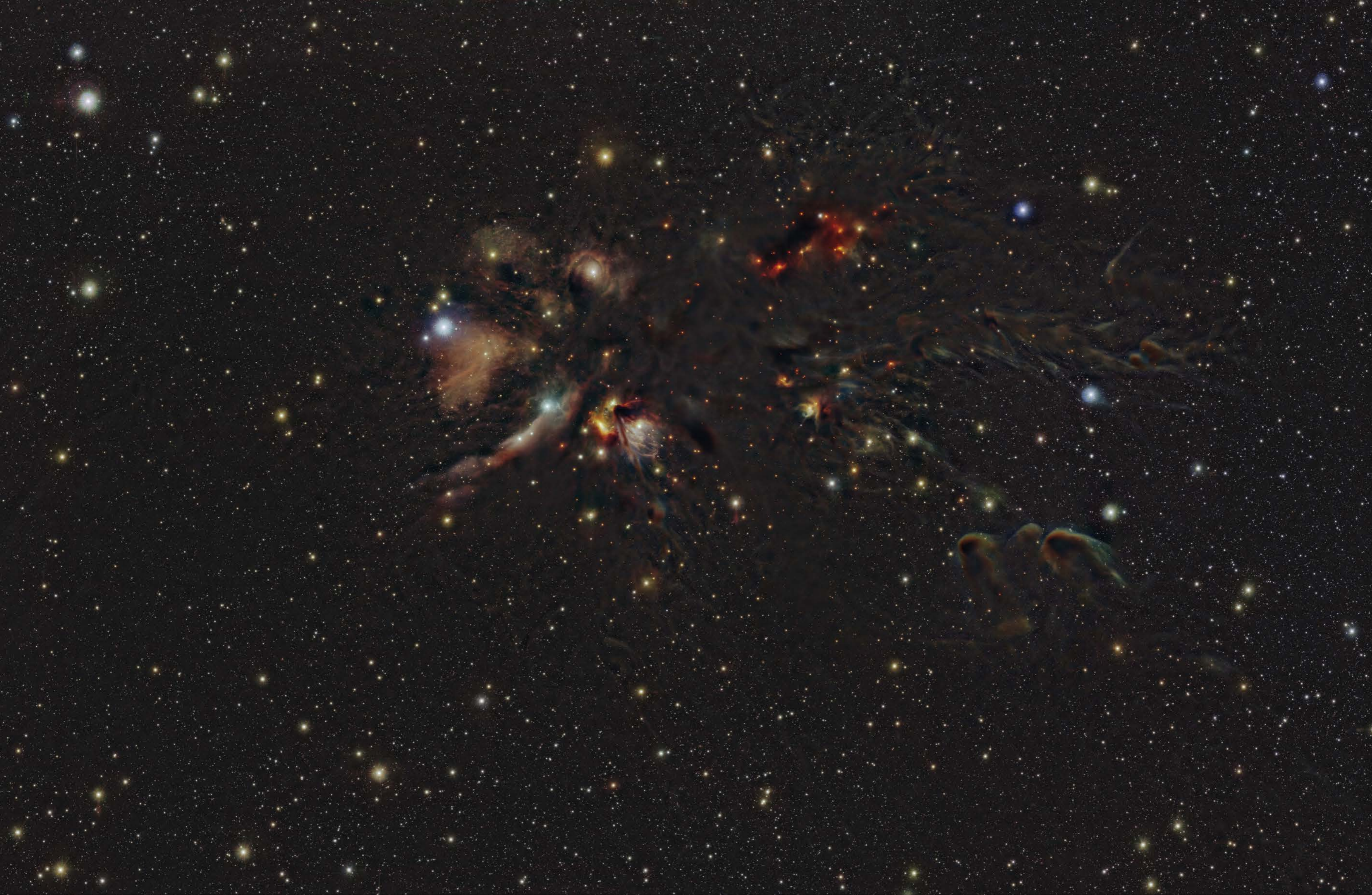
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An infrared view of the L1688 region in Ophiuchus

# September 2024

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Night view of the ELT under construction on Cerro Armazones

October 2024

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The IC4701 nebula

# November 2024

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Sunset over Cerro Paranal

# December 2024

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday							
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