

Serpent in the sky captured with ESO telescope

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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, and in this light we can see the light of the stars behind the nebulae now piercing through. Credit: ESO/VVVX

A myriad of stars is revealed behind the faint orange glow of the Sh2-54 nebula in this new infrared image. Located in the constellation Serpens, this stunning stellar nursery has been captured in all its intricate detail using the Visible and Infrared Survey Telescope for Astronomy (VISTA) based at ESO's Paranal Observatory in Chile.

When the ancients looked up at the night sky they saw random patterns in the stars. The Greeks, for instance, named one of these "constellations" Serpens, because of its resemblance to a snake. What they wouldn't have been able to see is that at the tail end of this constellation there is a wealth of stunning [astronomical objects](#). These include the Eagle, the Omega and the Sh2-54 nebulae; the last of these is revealed, in a new light, in this spectacular infrared image.

Nebulae are vast clouds of gas and dust from which stars are born. Telescopes have allowed astronomers to identify and analyze these rather faint objects in exquisite detail. The nebula shown here, located about 6000 light-years away, is officially called Sh2-54; the "Sh" refers to the US astronomer Steward Sharpless, who cataloged more than 300 nebulae in the 1950s.

As the technology used to explore the Universe progresses, so too does our understanding of these stellar nurseries. One of these advances is the ability to look beyond the light that can be detected by our eyes, such as infrared light. Just as the [snake](#), the namesake of this nebula, evolved the ability to sense infrared light to better understand its environment, so too have we developed infrared instruments to learn more about the

Universe.



A visible-light image of the Sh2-54 nebula, captured by the VLT Survey Telescope at ESO's Paranal Observatory in Chile. At these wavelengths the structure of the nebula is clear and the clouds of dust and gas block the light of stars within and behind it. Credit: ESO

Whilst [visible light](#) is easily absorbed by clouds of dust in nebulae,

infrared light can pass through the thick layers of dust almost unimpeded. The image here therefore reveals a wealth of stars hidden behind the veils of dust. This is particularly useful as it allows scientists to study what happens in stellar nurseries in much greater detail, and thus learn more about how stars form.

This image was captured in [infrared light](#) using the sensitive 67-million-pixel camera on ESO's VISTA telescope at Paranal Observatory in Chile. It was taken as part of the VVVX survey—the VISTA Variables in the Via Láctea eXtended survey. This is a multi-year project that has repeatedly observed a large portion of the Milky Way at [infrared wavelengths](#), providing key data to understand [stellar evolution](#).

Provided by ESO

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