'Smiling cat' Sh2-284 nebula captured in new image

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This spectacular picture of the Sh2-284 nebula has been captured in great detail by the VLT Survey Telescope at ESO's Paranal Observatory. Sh2-284 is a star formation region, and at its center there is a cluster of young stars, dubbed Dolidze 25. The radiation from this cluster is powerful enough to ionize the hydrogen gas in the nebula's cloud. It is this ionization that produces its bright orange and red colours.This image is part of the VST Photometric Hα Survey of the Southern Galactic Plane and Bulge (https://www.vphasplus.org/), led by Janet Drew at the University of Hertfordshire in the UK. Credit: ESO/VPHAS+ team / CASU

This cloud of orange and red, part of the Sh2-284 nebula, is shown here in spectacular detail using data from the VLT Survey Telescope, hosted by the European Southern Observatory (ESO). This nebula is teeming with young stars, as gas and dust within it clumps together to form new suns. If you take a look at the cloud as a whole, you might be able to make out the face of a cat, smiling down from the sky.

The Sh2-284 stellar nursery is a vast region of dust and gas and its brightest part, visible in this image, is about 150 light-years (over 1400 trillion kilometers) across. It's located some 15,000 light-years away from Earth in the constellation Monoceros.

Nestled in the center of the brightest part of the nebula—right under the cat's nose—is a cluster of young stars known as Dolidze 25, which produces large amounts of strong radiation and winds. The radiation is powerful enough to ionize the hydrogen gas in the cloud, thereby producing its bright orange and red colors. It's in clouds like this that the building blocks for new stars reside.

The winds from the central cluster of stars push away the gas and dust in the nebula, hollowing out its center. As the winds encounter denser pockets of material, these offer more resistance, meaning that the areas

around them are eroded away first. This creates several pillars that can be seen along the edges of Sh2-284 pointing at the center of the nebula, such as the one on the right-hand side of the frame. While these pillars might look small in the image, they are in fact several light-years wide and contain vast amounts of gas and dust out of which new stars form.

This image was created using data from the VLT Survey Telescope (VST), which is owned by The National Institute for Astrophysics in Italy, INAF, and is hosted at ESO's Paranal Observatory in Chile. The VST is dedicated to mapping the southern sky in visible light and makes use of a 256-million-pixel camera specially designed for taking very wide-field images. This image is part of the VST Photometric Hα Survey of the Southern Galactic Plane and Bulge (VPHAS+), which has studied some 500 million objects in our home galaxy, helping us better understand the birth, life, and eventual death of stars within our Milky Way.

Provided by ESO

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