

ESO’s Very Large Telescope peers into a distant nebula*

Astronomers using data from ESO’s Very Large Telescope (VLT), at the Paranal Observatory in Chile, have made an impressive composite of the nebula Messier 17, also known as the Omega Nebula or the Swan Nebula. The painting-like image shows vast clouds of gas and dust illuminated by the intense radiation from young stars.

The image shows a central region about 15 light-years across, although the entire nebula is even larger, about 40 light-years in total. Messier 17 is in the constellation of Sagittarius(<http://www.iau.org/static/public/constellations/gif/SGR.gif>) (the Archer), about 6000 light-years from Earth. It is a popular target for amateur astronomers, who can obtain good quality images using small telescopes.

These deep VLT observations were made at near-infrared wavelengths with the ISAAC instrument. The filters used were J (1.25 µm, shown in blue), H (1.6 µm, shown in green), and K (2.2 µm, shown in red). In the centre of the image is a cluster of massive young stars whose intense radiation makes the surrounding hydrogen gas glow. To the lower right of the cluster is a huge cloud of molecular gas. At visible wavelengths, dust grains in the cloud obscure our view, but by observing in infrared light, the glow of the hydrogen gas behind the cloud can be seen shining faintly through. Hidden in this region, which has a dark reddish appearance, the astronomers found the opaque silhouette of a disc of gas and dust. Although it is small in this image, the disc has a diameter of about 20 000 AU, dwarfing our Solar System (1 AU is the distance between the Earth and the Sun). It is thought that this disc is rotating and feeding material onto a central protostar — an early stage in the formation of a new star.

Links

- The research for which these observations were originally made was described in ESO press release [eso0416](http://www.eso.org/public/news/eso0416/)(<http://www.eso.org/public/news/eso0416/>).

Credit: ESO/R. Chini

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About the Image

Id:	potw1044a
Type:	Observation
Release date:	1 November 2010, 10:00
Size:	2487 x 2513 px

About the Object

Name:	M 17(https://simbad.u-strasbg.fr/simbad/sim-id?Ident=M+17), Messier 17(https://simbad.u-strasbg.fr/simbad/sim-id?Ident=Messier+17), Omega Nebula(https://simbad.u-strasbg.fr/simbad/sim-id?Ident=Omega+Nebula)
Type:	Milky Way : Nebula : Type : Star Formation Milky Way : Nebula : Appearance : Emission
Distance:	5500 light years(http://en.wikipedia.org/wiki/Light-year)
Constellation:	Sagittarius
Category:	Nebulae(/public/images/archive/category/nebulae/) Star Clusters(/public/images/archive/category/starclusters/)

Image Formats

-  Fullsize Original(<https://cdn.eso.org/images/original/potw1044a.tif>)
9.9 MB 
-  Large JPEG(<https://cdn.eso.org/images/large/potw1044a.jpg>)
1.3 MB
-  Screensize JPEG(<https://cdn.eso.org/images/screen/potw1044a.jpg>)
310.1 KB

Zoomable

-  Zoomable([zoomable/](/zoomable/))

Wallpapers

-  1024x768(<https://cdn.eso.org/images/wallpaper1/potw1044a.jpg>)
292.3 KB
-  1280x1024(<https://cdn.eso.org/images/wallpaper2/potw1044a.jpg>)
418.6 KB
-  1600x1200(<https://cdn.eso.org/images/wallpaper3/potw1044a.jpg>)
542.2 KB
-  1920x1200(<https://cdn.eso.org/images/wallpaper4/potw1044a.jpg>)
605.6 KB
-  2048x1536(<https://cdn.eso.org/images/wallpaper5/potw1044a.jpg>)
779.9 KB

Coordinates

Position (RA):	18 20 38.48
Position (Dec):	-16° 8' 31.38"
Field of view:	6.13 x 6.20 arcminutes
Orientation:	North is 180.0° left of vertical



Colours & filters

Band	Wavelength	Telescope
Infrared J	1.25 µm	Very Large Telescope(http://www.eso.org/public/teles-instr/paranal-observatory/vlt/) ISAAC(http://www.eso.org/public/teles-instr/vlt/vlt-instr/isaac/)
Infrared H	1.6 µm	Very Large Telescope(http://www.eso.org/public/teles-instr/paranal-observatory/vlt/) ISAAC(http://www.eso.org/public/teles-instr/vlt/vlt-instr/isaac/)
Infrared K	2.2 µm	Very Large Telescope(http://www.eso.org/public/teles-instr/paranal-observatory/vlt/) ISAAC(http://www.eso.org/public/teles-instr/vlt/vlt-instr/isaac/)