

A Guided Tour of the Tactile Carina Nebula

This is a guided audio tour for a tactile presentation of the Carina Nebula. The presentation consists of two panels, bound into a booklet. One panel contains a tactile color image and the other contains a texture legend. Please note that the edges of the image are bound to the panel by a series of grommets that have texture, but are not part of the image. You may find it helpful to review the Carina Nebula texture legend before beginning this tour.

The Carina Nebula is a huge cloud of cold hydrogen gas where thousands of stars are cycling through the stages of stellar life and death. Three million years ago, the middle region of this cloud of gas began to collapse into dense clumps that ignited into stars. Radiation and stellar winds from these stars are eroding the gas of the nebula, creating fantastic features that resemble bubbles, islands and mountains, and triggering a new round of star birth.

We begin our journey in the top-left corner, and travel counterclockwise along the edges of the Tactile Carina Nebula picture. Each touchable feature from the Carina Nebula Texture Legend is identified on this tour.

Starting at the left corner, we find a partial gas bubble, represented by a raised, curved arc. This bubble shape was carved by the ferocious blast of stellar winds emanating from stars within the nebula.

Continuing downward along the left side of the picture, we encounter a second partial bubble.

Between the two partial bubbles we find crisscross symbols indicating stars. There are two groups of stars in this picture. This first group of stars is called the Trumpler 16 star cluster.

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Below the second and lower partial bubble is a double-oval — or figure-eight — symbol that indicates Eta Carinae, the brightest star in the Trumpler 16 cluster.

Eta Carinae is an extremely massive, unstable star in the final stages of its life. It is approaching the point at which it will die in a titanic explosion called a supernova.

About 150 years ago, Eta Carinae experienced a huge outburst that sent gas billowing away from the star. These lobes of gas look like two balloons expanding in opposite directions. They are moving outward from the center of the star at 1.5 million miles per hour.

At the bottom-left corner of the image is an irregularly shaped object called a dark globule. These are dark clouds of dust and gas that resist erosion by the stellar winds. New stars may be forming in their depths.

Moving along the lower-left quadrant, we find a combination of two different textures: a dotted texture that depicts bright gas, and a series of parallel lines that indicates dark gas. This large feature is the Keyhole Nebula. The Keyhole Nebula got its name from early astronomers, who thought its shape resembled the curves of an old-fashioned door lock. However, some people think the shape also resembles a foot!

Continuing along the lower edge of the picture, toward the lower-right corner, we encounter a series of broken vertical lines within a mountain range-shaped area. The vertical lines represent pillars of dust and gas. New stars are forming inside the pillars, and their radiation is wearing away at the gas that surrounds them. Someday, these pillars will be replaced by a new cluster of stars.

Now, turn upward along the right edge of the picture. Just above the

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dust pillars is the second group of stars in the picture, the Trumpler 14 star cluster. Compared with Trumpler 16, Trumpler 14 has a stronger concentration of stars and is more densely packed.

Just above the Trumpler 14 star cluster is a multi-pronged feature. In this area, jets of gas are emerging from a group of pillars where new stars are being born. The baby stars emit these bright jets.

At the top-right corner, we find a checkerboard texture that indicates dark, dusty areas within the Carina Nebula image. These contrast with the bright gas we've encountered through much of the image.

Traveling from the right corner of the image toward the left corner, we encounter bright gas surrounding a nearly complete bubble of gas.

Continuing leftward along the top edge, we encounter a second dark, dusty area, indicated by a checkerboard texture. About a third of the way down, below the dark dust, is an irregularly shaped object called a bright globule. This is a knot of gas and dust where new stars may be forming. Stellar radiation causes it to glow around the edges.

Traveling along the edge of the picture, beyond the dark, dusty area, we reach the bright gases at the top of the Keyhole Nebula.

Continuing leftward, we return to the starting point of this tour. You have completed your voyage through the Tactile Carina Nebula. Now it's time to explore the Carina Nebula on your own!