



NGC 2392





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Star Death in Nebula NGC 2392

NASA's Hubble Space Telescope captured a majestic view of planetary nebula NGC 2392. This stellar relic, which represents the glowing remains of a dying, Sun-like star, was first observed in 1787 by astronomer William Herschel.

The planetary nebula began forming about 10,000 years ago, when the dying star began flinging material into space. It is composed of two elliptically shaped lobes of matter streaming away from the dying star. In this photo, one bubble lies in front of the other, obscuring part of the second lobe.

Scientists theorize that a ring of dense material around the star's equator, ejected during its red giant phase, created the nebula's shape. This dense waist of material is plodding along at 72,000 mph (115,000 kph), preventing high-velocity stellar winds from pushing matter along the equator. Instead, the 900,000-mph (1.5 million-kph) winds are sweeping the material above and below the star, creating the elongated bubbles. The bubbles are not smooth like balloons, but rather have filaments of denser matter. Each bubble is roughly one light-year long and half a light-year wide.

Astronomers are still puzzled about the origin of the ring's comet-shaped features. A possible explanation is that these objects formed from a collision of slow- and fast-moving gases.

Why Study Star Death?

Studying the demise of Sun-like stars is important for understanding how two of the elements critical to human life — carbon and nitrogen, which are formed from the hydrogen and helium inside stars — are expelled into the interstellar medium. Eventually, these elements become the building blocks of new stars and planets.

The image was taken from January 10 –13, 2000, shortly after the space shuttle Discovery crew visited Hubble to restore it to full capability.

VOCABULARY

New General Catalogue (NGC): A catalogue of star clusters, nebulae, and galaxies compiled in 1888.

Planetary nebula: A well-defined shell of gaseous material ejected by a dying, Sun-like star. The material glows from the radiation emitted by the central hot star it surrounds.

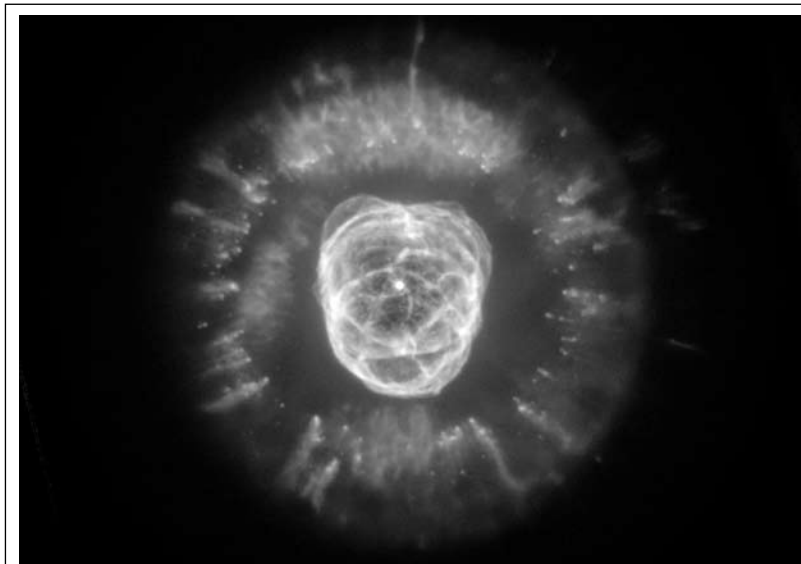
Red giant: A large, cool star near the end of its life. Red giants are hundreds of times larger than our Sun.

Stellar winds: Streams of material flowing outward from a star.

FAST FACTS

Location: In the constellation Gemini.

Distance from Earth: 5,000 light-years.



About the image: Astronomers used Hubble's Wide Field and Planetary Camera 2 to reveal fascinating details of NGC 2392. The outer area in this image is actually a disk of material embellished with a ring of comet-shaped objects whose tails are streaming away from the central dying star. The bright central region is a bubble of material being blown into space by the central star's intense "wind" of high-speed material. The nebula's glowing gases produce the colors in this image: nitrogen (red), hydrogen (green), oxygen (blue), and helium (violet).

Credits: NASA, A. Fruchter, and the ERO Team (STScI).

You can get images and other information about the Hubble Space Telescope on the World Wide Web. Visit <https://hubblesite.org/> and follow the links.



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