



### Cassiopeia A Is Not Dying Peacefully. Is It A Rare Magnetar?

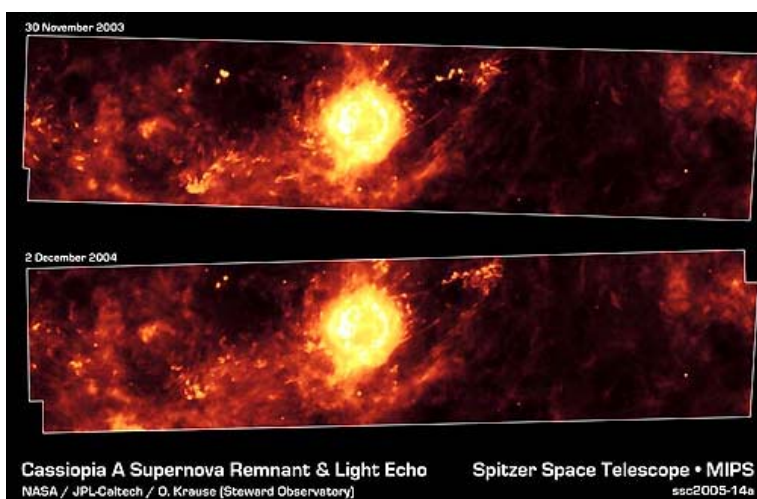
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*Spitzer (infrared telescope) came along and showed us this exploded star, one of the most intensively studied objects in the sky, is still undergoing death throes before heading to its final grave." - Oliver Krause, Ph.D., University of Arizona*

**April 22, 2006 Pasadena, California** - The Jet Propulsion Laboratory in Pasadena reported this week that NASA's Spitzer Space Telescope has made accidental and surprising infrared images of light echoes from a star that was supposed to have died 325 years ago in a supernova explosion. But the new infrared information indicates Cassiopeia has released "at least one burst of energy as recently as fifty years ago" from its cosmic grave 11,000 light-years from Earth.

Oliver Krause, Ph.D., at the University of Arizona's Astronomy Department in Tucson, explained: "We had thought the stellar remains inside Cassiopeia A were just fading away. Spitzer (infrared telescope) came along and showed us this exploded star, one of the most intensively studied objects in the sky, is still undergoing death throes before heading to its final grave."

The echo of an energy burst is the first witnessed around a long-dead star and the largest ever seen. Another astronomer at UA, George Rieke, Ph.D., said, "We had no idea that Spitzer would ever see light echoes. Sometimes you just trip over the biggest discoveries."



Cassiopeia A Supernova Remnant & Light Echo  
NASA / JPL-Caltech / O. Krause (Steward Observatory)

Spitzer Space Telescope • MIPS  
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These Spitzer Space Telescope (SST) infrared images were taken one year apart on November 30, 2003, and December 2, 2004. The yellow center is the supernova remnant of the dying star, Cassiopeia A and surrounding reddish-orange clouds of dust.

Earthfiles, news category.



This false-color image made by three different wavebands of light, shows the many sides of the Cassiopeia A supernova remnant. Image credit: SST and NASA.

NASA reports that, "A supernova remnant like Cassiopeia A typically consists of an outer, shimmering shell of expelled material and a core skeleton of a once-massive star called a neutron star. Neutron stars come in several varieties, ranging from intensely active to silent.

"The new infrared echo indicates the Cassiopeia A neutron star is active and might even be an exotic, spastic type of object called a 'magnetar.' Magnetars are like screaming dead stars, with eruptive surfaces that rupture and quake, pouring out tremendous amounts of high-energy gamma rays. Spitzer might have captured the 'shriek' of such a star in the form of light zipping away through space and heating up its surroundings."

Astronomer Rieke says, "Magnetars are very rare and hard to study, especially if they are no longer associated with their place of origin. If we have indeed uncovered one, then it will be just about the only one for which we know what kind of star it came from and when."

Cassiopeia A is the youngest known supernova remnant in our Milky Way Galaxy, and the strongest extrasolar radio source in the sky. Calculating its expansion back, astronomers have found that the supernova must have blown up around the year 1667. Strangely, it was not widely noticed by that epoch's astronomers. However, as astronomy historian, William Ashworth, found out in 1980, it was perhaps observed by John Flamsteed on August 16, 1680, who cataloged a star near its position as "3 Cassiopeiae." However, he did not recognize it as a supernova, or "New Star," and simply cataloged it as an ordinary star.

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