



**Chandra X-ray
Observatory Center**

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Cassiopeia A (Cas A): A 300-year-old supernova remnant created by the explosion of a massive star. (Credit: X-ray: NASA/CXC/SAO; Optical: NASA/STScI; Infrared: NASA/JPL-Caltech/Steward/O.Krause et al.)

Caption: This stunning picture of Cas A is a composite of infrared (red), optical (yellow) and X-ray (green and blue) images. The infrared image from the Spitzer Space Telescope reveals warm dust in the outer shell with temperatures of about 25 degrees Celsius, whereas the optical image from the Hubble Space telescope brings out the delicate filamentary structures of warmer (10,000 Celsius) gas; Chandra shows hot gases at about 10 million degrees Celsius. This hot gas was created when ejected material from the supernova smashed into surrounding gas and dust at speeds of about ten million miles per hour. A comparison of the infrared and X-ray images of Cas A should enable astronomers to determine whether most of the dust in the supernova remnant came from the massive star before it exploded, or from the rapidly expanding supernova ejecta.

Chandra X-ray Observatory ACIS Image

CXC operated for NASA by the Smithsonian Astrophysical Observatory