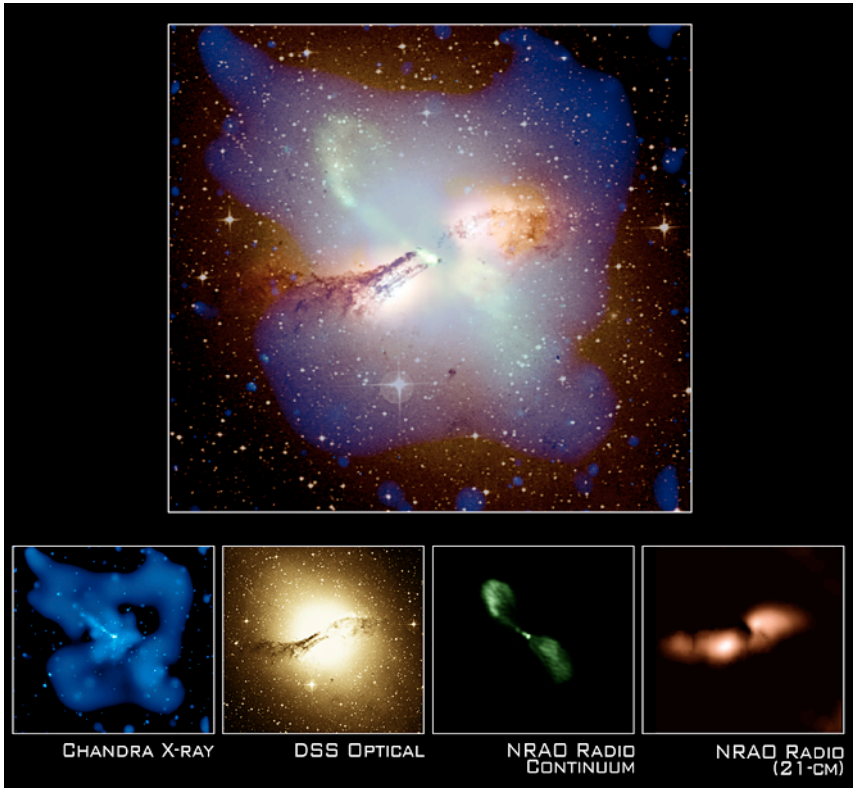
Chandra Science Highlights

CENTAURUS A:

X-RAY ARCS TELL THE TALE OF A GIANT EUPTION

A composite X-ray (blue), radio (pink and green), and optical (orange and yellow) image of the galaxy Centaurus A presents a stunning tableau of a galaxy in turmoil. A broad band of dust and cold gas is bisected at an angle by opposing jets of high-energy particles blasting away from the supermassive black hole in the nucleus. The Chandra image revealed two large arcs of X-ray emitting hot gas in the outskirts of the galaxy on a plane perpendicular to the jets.



Chandra HRC Image.

- The arcs of multimillion degree gas appear to be part of a projected ring 8 kpc in diameter.
- The size and location of the ring indicate that it may have been produced in a titanic explosion that occurred about ten million years ago. This age is consistent with optical and infrared observations that indicate that the rate of star formation in the galaxy increased dramatically at about that time.
- The internal energy of the ring is ~10^{55} ergs, equivalent to the blast-wave energy of ~10,000 supernovas.

Reference: M. Karovska et al. Astrophys. J. (2002, in press)

Credit: NASA/CXC/M. Karovska et al.); Radio 21-cm image (NRAO/VLA/Schiminovich et al.), Radio continuum image (NRAO/VLA/J. Condon et al.); Optical (Digitized Sky Survey U.K. Schmidt Image/STScI)