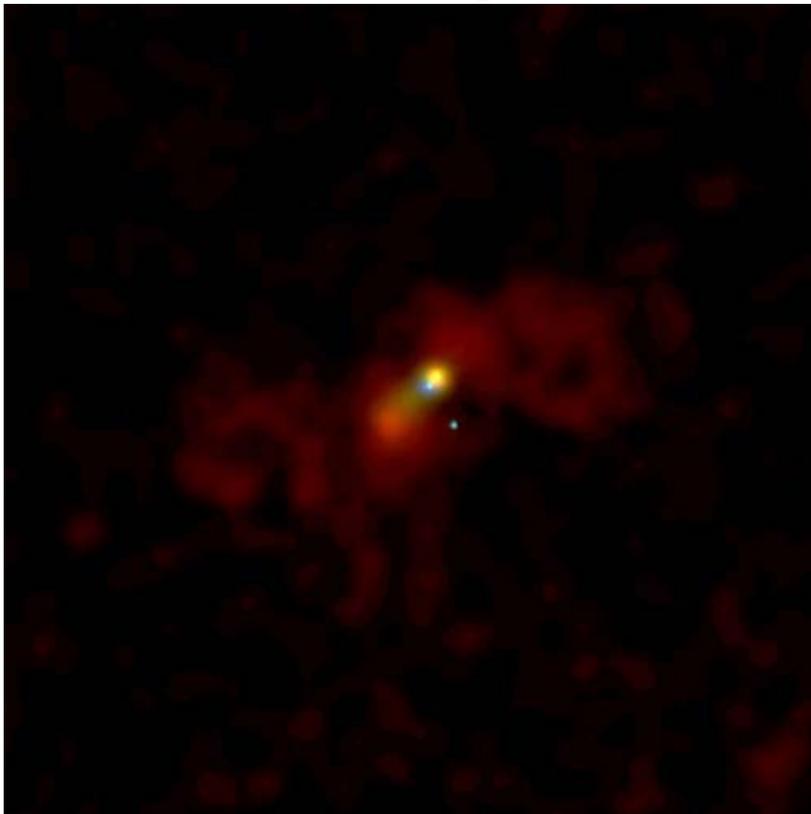




Chandra Science Highlights

ARP220: A Super-Starburst Ultraluminous Infrared Galaxy



Chandra X-ray Observatory ACIS Image.

The Chandra observation of the ultraluminous galaxy ARP 220 shows a bright central region at the waist of an hour-glass-shaped cloud of multimillion degree gas. The cloud is thought to be due to a galactic wind driven by a tremendous burst of star formation that was triggered by the collision of two large galaxies. Giant lobes of hot gas that span a distance of 25 kpc are also apparent in the image.

- Chandra observations show a central concentration of hard X-ray emission, including a point source coincident with the nucleus of one of the pre-merger galaxies. Another fainter X-ray source nearby may coincide with the nucleus of the other galaxy remnant.
- The two central sources are relatively weak ($\sim 1 \times 10^{41}$ erg/s for the nuclear region) and provide strong evidence to support the theory that the extraordinary luminosity of Arp 220 ($\sim 5 \times 10^{45}$ erg/s) is due to star formation and not an active galactic nucleus.
- The X-ray emission from the galactic wind appears to be generated at the interface between the outflowing gas and clouds of gas in the galaxy.
- The giant lobes of hot gas surrounding Arp 220 could be galactic remnants flung into space by the early impact of the collision.

Credit: NASA/SAO/CXC/J. McDowell