



Chandra X-ray  
Observatory Center

Harvard-Smithsonian Center for Astrophysics  
60 Garden St. Cambridge, MA 02138 USA  
<http://chandra.harvard.edu>

Perseus Cluster: The central region of a rich galaxy cluster about 250 million light years from Earth.  
(Credit: NASA/CXC/IoA/A.Fabian et al.)

Caption: An accumulation of 270 hours of Chandra observations reveals evidence of the turmoil that has wracked the central region of the cluster for hundreds of millions of years. The cluster contains thousands of galaxies immersed in a vast cloud of multimillion degree gas with the mass equivalent of trillions of suns. The enormous bright loops, ripples, and jet-like streaks apparent in the image can be linked to explosive activity generated by gas swirling toward the supermassive black hole (white spot) in the giant central galaxy, NGC 1275. Many of these features extend well beyond the galaxy where they heat the cluster gas and affect the evolution of the cluster. The dark blue filaments near the center are likely due to a galaxy that has been torn apart and is falling inward. Eventually, some of the gas from the doomed galaxy will be captured by the supermassive black hole in NGC 1275, fueling still more

explosive activity.

Scale: Image is 284 arcsec across.

Chandra X-ray Observatory ACIS Image

CXC operated for NASA by the Smithsonian Astrophysical Observatory

---