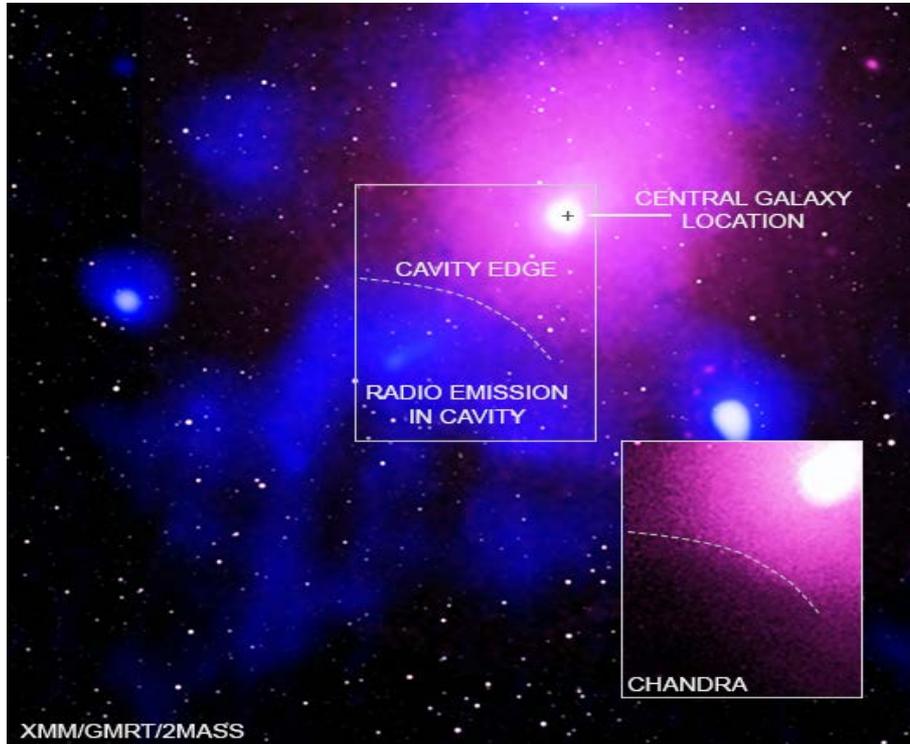




Chandra Science Highlight

Record-Breaking Explosion by Black Hole Spotted



Caption: Evidence for the biggest explosion known. XMM-Newton data (pink) and Giant Metrewave Radio Telescope data (blue) are shown in the main panel, and Chandra data in the inset. The explosive outburst was generated by a supermassive black hole located in the cluster's central galaxy, which carved an enormous cavity in the surrounding hot gas.

- The biggest known explosion has been discovered in a galaxy cluster using X-ray data from Chandra and radio data from telescopes in India and Australia.
- A giant black hole in the central galaxy of the Ophiuchus cluster generated an explosive outburst, producing jets that created a cavity in the surrounding hot gas.
- The jets have switched off but the cavity is still present, filled with radio emission from relativistic electrons.
- The outburst released a factor of five more energy (5×10^{61} ergs) than the previous record holder and hundreds of thousands of times more than typical galaxy clusters.

Distance estimate: About 390 million light years.

Scale: Main image is ~25.2 arcmin (2.8 million light years) across. The inset image is ~6.5 arcmin (720,000 light years) across.

Credit: X-ray: Chandra: NASA/CXC/NRL/S. Giacintucci, et al., XMM-Newton: ESA/XMM-Newton; Radio: NCRA/TIFR/GMRT; Infrared: 2MASS/UMass/IPAC-Caltech/NASA/NSF

Instrument: ACIS

Reference: Giacintucci, S., et al., 2020, ApJ, 891, 1;
[arXiv:2002.01291](https://arxiv.org/abs/2002.01291)