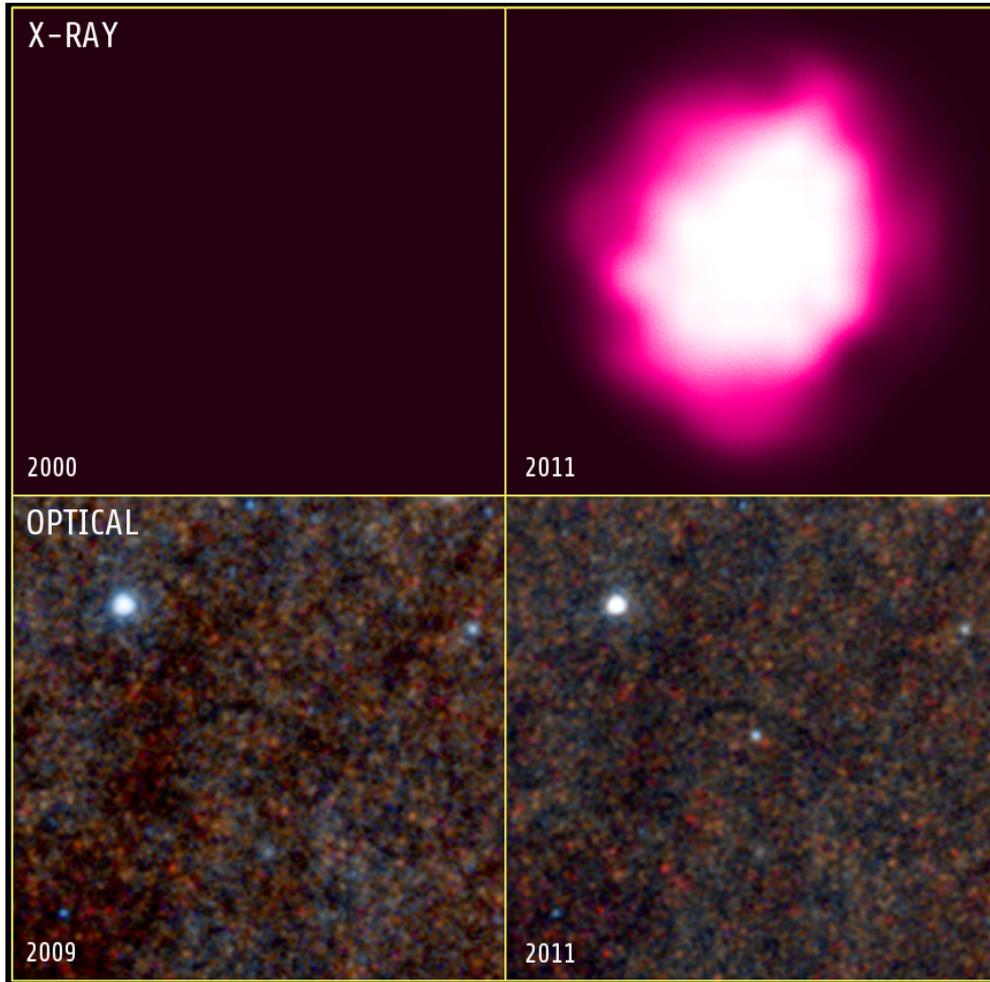




Chandra Science Highlight

The Birth of an Ultra-Luminous X-ray Source in M83



Chandra observations of the ultraluminous X-ray source (ULX) in the galaxy M83 show that it increased in X-ray luminosity by at least a factor of 3,000 between 2000 and December 2011. Optical images reveal a bright blue source (center of 2011 image) at the position of the ULX that was not detected in 2009.

- * The luminosity ($\sim 4 \times 10^{39}$ erg/s) and spectral properties of the ULX are consistent with accretion powered by a black hole of mass between 40 and 100 solar masses.
- * The optical observations suggest that the black hole is accreting gas from a low-mass (< 4 solar masses) red giant star with an age > 500 Myr, and that the blue source detected in 2011 is likely produced by the outer part of the accretion disk which has been heated by X-ray photons.
- * The M83 ULX shows that not all ULXs involve a young, high-mass donor star, confirming other indications that there are two classes of ULXs

Reference : Soria, R. et al, 2012, ApJ 750:152 arXiv:1203.2335

Credit: Optical: ESO/VLT; Close-up-X-ray: NASA/CXC/Curtin University/ R.Soria et al., Optical: NASA/STScI/Middlebury College/F.Winkler et al.

Distance Estimate: About 15 Million light years

Chandra ACIS Image