



Chandra Science Highlight

SN1979C: The Youngest Nearby Black Hole?



Chandra X-ray Observatory ACIS image Scale: Image is 5 by 4 arcmin, (72,000 x 58,000 light years)

Distance Estimate: About 50 million light years.

Credit: X-ray: NASA/CXC/SAO/D. Patnaude et al, Optical: ESO/VLT,
Infrared: NASA/JPL/Caltech

This composite image shows the galaxy M100, and the location of SN 1979c, which may contain the youngest known black hole in our cosmic neighborhood. X-rays detected by Chandra are shown in gold, while optical data from ESO's Very Large Telescope are shown in yellow-white and blue, and infrared data from Spitzer are red.

- Data from Chandra, as well as NASA's Swift and the European Space Agency's XMM-Newton telescopes revealed a bright X-ray source coincident with the location of SN 1979c.
- The X-ray flux has remained steady for the 12 years from 1995 to 2007 over which it has been observed.
- The steady X-ray flux, and the X-ray spectrum support the idea that the object is a black hole being fed either by materials falling back into the black hole after the supernova, or from a binary companion.
- If the black hole interpretation is correct, SN 1979c is the nearest example where the birth of a black hole has been observed.

References: Patnaude, D. Et al. 2010,
New Astronomy (in press); arXiv:0912.1571