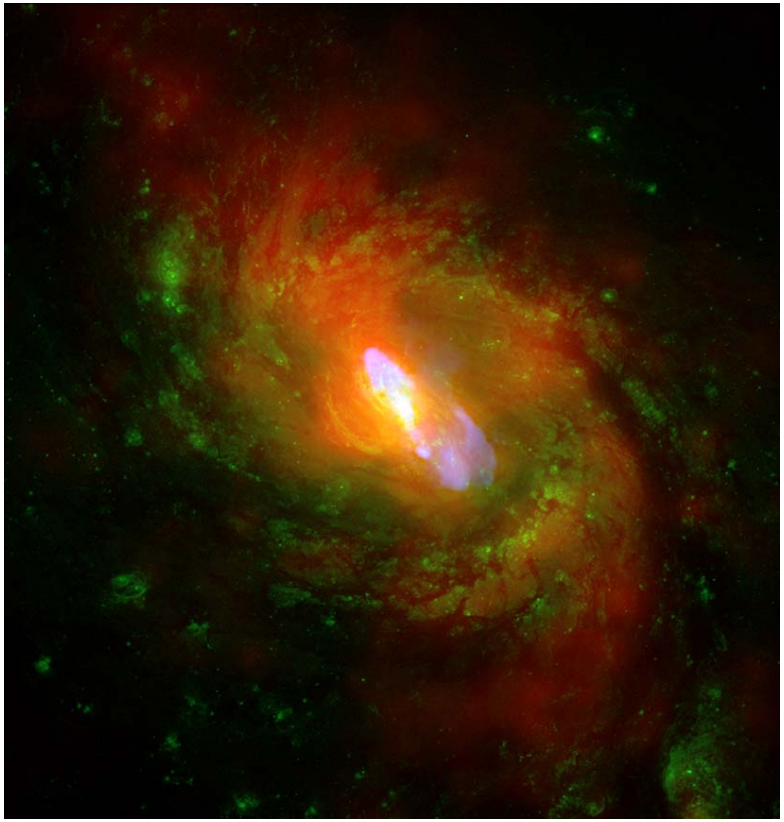
Chandra Science Highlight

NGC 1068: Winds of Change: How Black Holes May Shape Galaxies



Chandra ACIS image. Image is 1.0 arc min across (about 15,000 light years across)

Distance Estimate: About 50 million light years

This composite image of NGC 1068 shows X-ray (red), optical (green) and radio (blue) data. The spiral structure of NGC 1068 is shown by the X-ray and optical data, and a jet powered by the central supermassive black hole is shown by the radio data.

- NGC 1068 is a nearby spiral galaxy containing a supermassive black hole at its center that is twice as massive as the Milky Ways.
- Gas in the vicinity of this black hole is accelerated and heated as it swirls toward the black hole. Some of the gas falls into the black hole, but some is blown away in a high speed wind.
- The X-ray images and spectra obtained using Chandra's High Energy Transmission Grating Spectrometer show that several solar masses per year are driven away from the central regions of NGC 1068 and deposited about 3,000 light years from the black hole.
- The wind likely carries enough energy to heat the surrounding gas and suppress extra star formation and thereby affect the evolution of the galaxy.

Reference: D. Evans et al. 2010, HEAD Meeting

Credits: X-ray: NASA/CXC/MIT/C.Carnizares, D.Evans et al), Optical (NASA/STScI), Radio (NSF/NRAO/VLA)