



**Chandra X-Ray
Observatory Center**

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HDFN: X-ray sources in the Hubble Deep Field North.

Credit: Optical: NASA/HST, X-ray: NASA/PSU

Caption: This image shows the results of the first long-duration (approx. 46 hour) X-ray survey of the Hubble Deep Field North. Chandra detected X rays from six of the galaxies in the field. The X-ray emitting objects discovered are a distant galaxy thought to contain a central giant black hole, three elliptically shaped galaxies, an extremely red distant galaxy, and a nearby spiral galaxy. A surprise result that must be studied further is the lack of X rays from some of the extremely luminous submillimeter galaxies at huge distances (over 10 billion light years) from earth. The Chandra results raise questions about the current theories used to explain the high energy output of these objects.

Scale: Image is 1 arcmin on a side.

Chandra X-Ray Observatory ACIS Image

CXC operated for NASA by the Smithsonian Astrophysical Observatory