



Chandra X-Ray  
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**Comet Tempel 1:** A comet discovered in 1867 by Ernst Wilhelm Leberecht Tempel of Marseille, France.

**Credit:** NASA/CXC/C.Lisse & S.Wolk

This image shows the comet in X-ray light on June 30, 2005, before the Deep Impact collision on July 4, 2005. At that time, the comet was bright and condensed. The Chandra X-ray spectrum shows that the X-rays produced by Tempel 1 were primarily due to a charge exchange process wherein highly charged oxygen ions from the solar wind capture electrons from cold neutral hydrogen atoms surrounding the comet and give off X-rays. X-ray studies of comets provide details about the intensity and composition of the solar wind and the size and density of the neutral gas cloud around the comet.

*Chandra X-ray Observatory ACIS Image*