



## Chandra X-Ray Observatory Center

Harvard-Smithsonian Center for Astrophysics  
 60 Garden Street, Cambridge, MA 01238 USA  
<http://chandra.harvard.edu>

**Titan:** Saturn's largest moon and the only moon in the solar system with a thick atmosphere.

**Credit:** NASA/CXC/Penn State/K.Mori et al.

When Titan passed in front of the X-ray bright Crab Nebula on January 5, 2003, it gave astronomers a rare opportunity to study its X-ray shadow (inset). Chandra's precise measurement of Titan's shadow enabled astronomers to determine that its X-ray absorbing atmosphere has a height of about 550 miles (880 kilometers). This may have been the first transit of the Crab Nebula by Titan since the nebula was formed by a supernova that was observed to occur in the year 1054. The next similar conjunction will take place in the year 2267.

**Scale:** Inset is 16 arcsec per side; Crab Nebula is 134 arcsec per side.

*Chandra X-ray Observatory ACIS Image*

*CXC operated for NASA by the Smithsonian Astrophysical Observatory*