



**Chandra X-ray  
Observatory Center**

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**Saturn:** The 6<sup>th</sup> planet from the Sun.  
(Credit: Chandra X-ray: NASA/MSFC/CXC/A.Bhardwaj et al.; GOES-12 X-ray: NOAA/SEC)

**Caption:** On January 20, 2004 a large flare (lower panels) was detected on the Sun by an X-ray telescope on a Geostationary Operational Environmental Satellite (GOES - 12). About two hours and 14 minutes later Saturn, which was being monitored by Chandra, was observed to brighten in X-rays (upper panels). This time delay corresponds to the difference in time it takes for X-rays, or any other form of light, to make the trip from the Sun to Saturn and back to Earth as opposed to traveling directly from the Sun to the Earth. The observation showed that the upper atmosphere of Saturn reflected about 0.07 percent of the solar X-rays that hit its atmosphere.

**Scale:** At the time of this observation, the angular diameter of the disk of Saturn was 20.5 arc seconds

*Chandra X-ray Observatory ACIS Image*

*CXC operated for NASA by the Smithsonian Astrophysical Observatory*