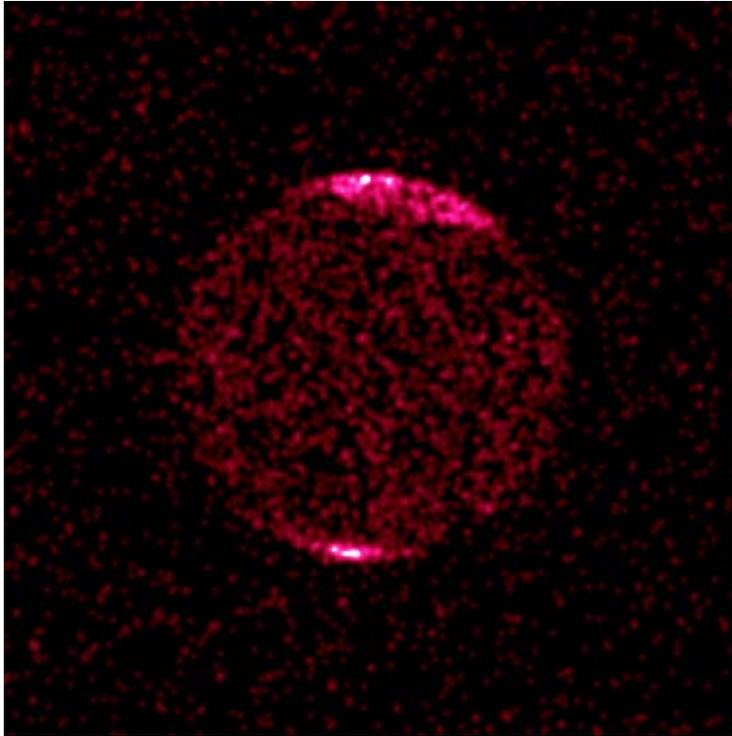




Chandra Science Highlights

Jupiter



Chandra's image of Jupiter provided some major surprises to scientists who study X-rays emanating from the planet. During the 10-hour observation which allowed Jupiter to complete an entire rotation, an X-ray hot spot that pulsated every 45 minutes was discovered near the north magnetic pole.

(Credit: NASA/SWRI/G.R. Gladstone et al.)

Reference: G.R. Gladstone et al. Nature 415, 1000 (28 Feb 2002)

Scale: Image is 1.5 arc minutes on a side
Chandra X-ray Observatory HRI Image.

- **High resolution observations with Chandra demonstrate that most of Jupiter's northern auroral X-rays come from a hot spot located at 60-70 degrees north latitude**
- **The magnetic field lines at the location of the X-ray hot spot are not connected to Jupiter's inner magnetosphere. This points to a particle source population in the outer magnetosphere.**
- **The hot spot appears fixed in magnetic latitude and longitude and occurs in a region where anomalous infrared and ultraviolet emissions have also been observed.**
- **The hot spot X-rays pulsate with an approximately 45-minute period, similar to high-latitude radio pulsations previously detected by NASA's Galileo and Cassini spacecraft.**