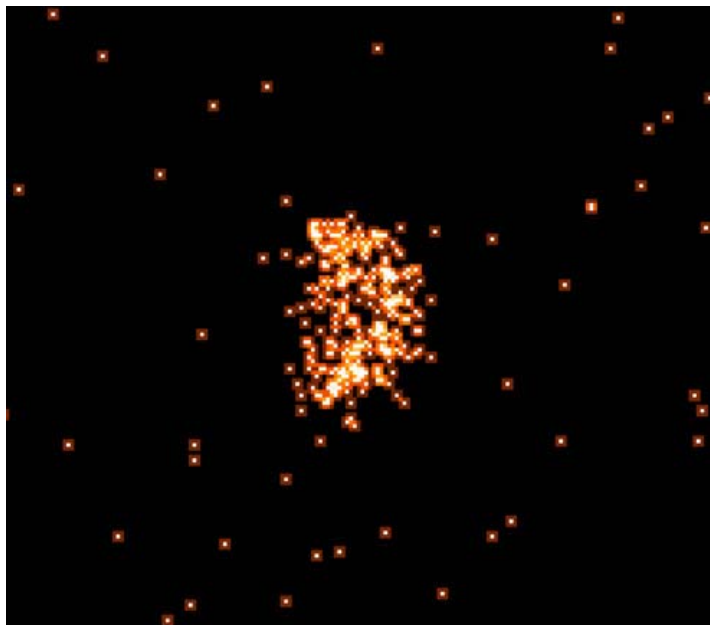




# Chandra Science Highlights

**VENUS: The second planet closest to the sun in our solar system.**



Chandra's unique capabilities provided astronomers with their first look at Venus in X-ray light. The image shows a half crescent due to the relative orientation of the sun, Earth and Venus. The X-rays from Venus are produced by fluorescent radiation from oxygen and other atoms in the atmosphere between 120 and 140 kilometers above the surface of the planet.

*(Credit: NASA/MPE/K. Dennerl et al.)*

Chandra X-ray Observatory ACIS image (The Low Energy Transmission Grating was also used with ACIS for additional observations of Venus.)

*Scale: Crescent of Venus is 23 arc seconds from top to bottom*

- **Venus was detected as a half-lit crescent, with considerable brightening on the sun-ward limb.**
- **The distribution of X-ray intensity agrees well with that expected from fluorescent scattering of solar X-rays in the planetary atmosphere.**
- **The spectrum of the radiation as measured with the ACIS imaging array and the Low Energy Transmission Grating with ACIS, showed a spectrum composed of fluorescent emission lines, mainly at the oxygen K-alpha energy of 0.53 keV.**
- **Fluorescent radiation is also detected from carbon, and marginally from nitrogen.**
- **The observation shows the potential of using X-ray observations for remotely monitoring the properties of regions in the Venusian atmosphere that are difficult to investigate otherwise, and the response of the atmosphere to solar activity.**