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LP 944-20: A brown dwarf located in the constellation Fornax.

Credit: NASA/UCB/Caltech/R.Rutledge et al.

Chandra has detected the first flare from a brown dwarf, or failed star. For most of the observation there were no X-rays from the brown dwarf (left panel), then the brown dwarf turned on with a bright X-ray flare (right panel). The energy emitted in the flare was comparable to a small solar flare and is thought to be produced by a twisted magnetic field. LP 944-20 is one of the best studied brown dwarfs because it is only 16 light years from Earth. It is about 500 million years old and has a mass that is about 60 times that of Jupiter, or 6 percent of the Sun's mass. The brown dwarf's diameter is about one-tenth that of the Sun and it has a rotation period of less than five hours.

Scale: Each panel is 5 arcmin on a side.

Chandra X-Ray Observatory ACIS Image