

NuSTAR delivers the X-ray goods

September 3 2013, by Alan Buis



Artist's concept of NuSTAR on orbit. NuSTAR has a 10-m (30') mast that deploys after launch to separate the optics modules (right) from the detectors in the focal plane (left). Credit: NASA/JPL-Caltech

(Phys.org) —NASA's Nuclear Spectroscopic Telescope Array, or NuSTAR, is giving the wider astronomical community a first look at its unique X-ray images of the cosmos. The first batch of data from the black-hole hunting telescope was publicly available on Aug. 29, via NASA's High Energy Astrophysics Science Archive Research Center, or HEASARC.

"We are pleased to present the world with NuSTAR's first look at the



sky in high-energy X-rays with a true focusing telescope," said Fiona Harrison, the mission's principal investigator at the California Institute of Technology, Pasadena.

The images, taken from July to August 2012, shortly after the spacecraft launched, comprise an assortment of extreme objects, including black holes near and far. The more distant black holes are some of the most luminous objects in the universe, radiating X-rays as they ferociously consume surrounding gas. One type of black hole in the new batch of data is a blazar, which is an active, supermassive black hole pointing a jet toward Earth. Systems known as X-ray binaries, in which a compact object such as a neutron star or black hole feeds off a stellar companion, are also in the mix, along with the remnants of stellar blasts called supernovas.

The data set only contains complete observations. Data will be released at a later date for those targets still being observed.

"Astronomers can use these data to better understand the capabilities of NuSTAR and design future observing proposals. The first opportunity will be this fall, for joint observations with XMM-Newton," said Karl Forster of Caltech, who is leading the effort to package the data for the public.

The European Space Agency's XMM-Newton X-ray telescope, like NASA's Chandra X-ray Observatory, complements NuSTAR. While XMM-Newton and Chandra see lower-energy X-ray light, NuSTAR is the first telescope capable of focusing high-energy X-ray light, allowing for more detailed images than were possible before.

Astronomers can compare data sets from different missions using HEASARC, which gives them a broader understanding of an object of interest. NuSTAR's high-energy observations help scientists bridge a gap



that existed previously in X-ray astronomy, and will lead to new revelations about the bizarre and energetic side of our universe.

Other NASA missions with data available via HEASARC include Chandra, Fermi, Swift, Cosmic Background Explorer (COBE), Wilkinson Microwave Anisotropy Probe (WMAP) and many more.

More information: www.nasa.gov/nustar

Provided by NASA

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