Video: NASA's NICER does the space station twist

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This time-lapse video, obtained June 8, 2018, shows the precise choreography of NASA's Neutron star Interior Composition Explorer (NICER) as it studies pulsars and other X-ray sources from its perch aboard the International Space Station. NICER observes and tracks numerous sources each day, ranging from the star closest to the sun, Proxima Centauri, to X-ray sources in other galaxies. Movement in the movie, which represents a little more than one 90-minute orbit, is sped up by 100 times.

One factor in NICER's gyrations is the motion of the space station's solar arrays, each of which extends 112 feet (34 meters). Long before the panels can encroach on NICER's field of view, the instrument pirouettes to aim its 56 X-ray telescopes at a new celestial target.

As the movie opens, the station's solar arrays are parked to prepare for the arrival and docking of the Soyuz MS-09 flight, which launched on June 6 carrying three members of the Expedition 56 crew. Then the panels reorient themselves and begin their normal tracking of the sun.

Neutron stars, also called pulsars, are the crushed cores left behind when massive stars explode. They hold more mass than the sun in a ball no bigger than a city. NICER aims to discover more about pulsars by obtaining precise measures of their size, which will determine their internal make-up. An embedded technology demonstration, called Station Explorer for X-ray Timing and Navigation Technology (SEXTANT), is paving the way for using pulsars as beacons for a future GPS-like system to aid spacecraft navigation in the solar system—and beyond.

Provided by NASA

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