

Iapetus' Enigmatic Ridge

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The Wonderful Worlds of Saturn from ISS during the Cassini Equinox Mission

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On July 1, 2008, the Cassini spacecraft entered a new phase in its mission at the ringed planet Saturn: the Cassini Equinox Mission (CEM). This two-year extended mission will provide an opportunity to study Saturn, its rings, magnetosphere, and satellite system as they pass through vernal equinox in August 2009. For the Imaging Science Subsystem, the CEM will allow for the study of vertical structures in the rings as the Sun crosses the ring plane, weather changes due to the changing seasons on Saturn and Titan, and the Enceladus south polar plume thanks to six encounters planned for the extended mission. Nearly halfway through the CEM, Cassini has observed Enceladus' "tiger stripes" at high resolution, revealing intriguing terrain not only at the tiger stripe fractures themselves, but also in the area

between these structures. Cloud features on Titan are becoming a common sight at mid- to high-latitudes in both hemispheres with streak clouds appearing at higher latitudes than those prevalent earlier in the Cassini mission. A tiny ($r \sim 0.25$ km) satellite named Aegaeon has been discovered orbiting within a dense arc of material within the G ring and may be a key source of material for the structure. With equinox now only two months away, Cassini has been observing at increased regularity the shadows of Saturn's various moon crossing Saturn's rings and each other during mutual events. Finally, topographic shading of vertical structures within the rings has been observed, particularly along the edges of gaps such as the Keeler Gap carved out by Daphnis.