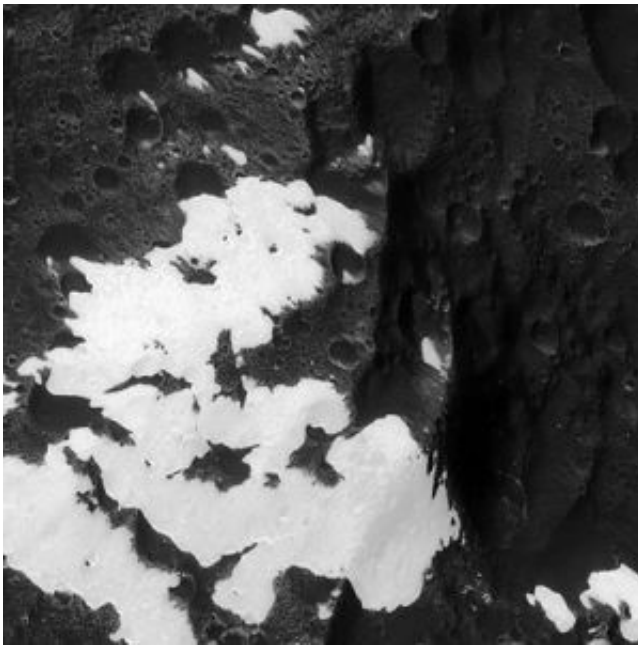


# Saturn's moon Iapetus is the yin-yang of the solar system

September 13 2007

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Cassini zooms in, for the first time, on the patchy, bright and dark mountains on Saturn's two-toned moon, Iapetus. The mountains were originally identified in images from the NASA Voyager spacecraft taken more than 25 years earlier. The image was acquired during Cassini's only close flyby of Iapetus. The terrain seen here is located on the equator of Iapetus at approximately  $199^\circ$  West, in the transition region between the moon's bright and dark hemispheres. North is up in the image. The image was taken on 10 September 2007, with Cassini's narrow-angle camera at a distance of approximately 9240 km from Iapetus. Image scale is 55 m per pixel. Credits: NASA/ JPL/ Space Science Institute

Cassini scientists are poring through hundreds of images returned from the 10 September fly-by of Saturn's two-toned moon Iapetus.

The pictures show the moon's yin and yang - a white hemisphere resembling snow, and the other as black as tar.

Images returned late Tuesday and early Wednesday show a surface that is heavily cratered, along with the mountain ridge that runs along the moon's equator. Many of the close-up observations focused on studying the strange 20-km high mountain ridge that gives the moon a walnut-shaped appearance.

"The images are really stunning," said Tilmann Denk, Cassini imaging scientist at the Free University in Berlin, Germany, who was responsible for the imaging observation planning. "Every new picture contained its own charm. I was most pleased about the images showing huge mountains rising over the horizon. I knew about this scenic viewing opportunity for more than seven years, and now the real images have suddenly materialised."

This flyby was nearly 100 times closer to Iapetus than Cassini's 2004 flyby, bringing the spacecraft to about 1640 km from the surface. The moon's irregular walnut shape, the mountain ridge that lies almost directly on the equator and Iapetus' brightness contrast are among the key mysteries scientists are trying to solve.

"There is never a dull moment on this mission," said Bob Mitchell, Cassini programme manager, NASA's Jet Propulsion Laboratory, USA. "We are very excited about the stunning images being returned. There is plenty here to keep many scientists busy for many years."

"Our flight over the surface of Iapetus was like a non-stop free fall, down the rabbit hole, directly into Wonderland! Very few places in our

solar system are more bizarre than the patchwork of pitch dark and snowy bright we have seen on this moon," said Carolyn Porco, Cassini imaging team leader at the Space Science Institute, USA.

The return of images and other data was delayed early Tuesday due to a galactic cosmic ray hit which put the spacecraft into the so-called safe mode. This occurred after the spacecraft had placed all of the flyby data on its data recorders and during the first few minutes after it began sending the data home. The data flow resumed later that day and concluded on Wednesday. The spacecraft is operating normally and its instruments are expected to return to normal operations in a few days.

"Iapetus provides us with a window back in time, to the formation of the planets over four billion years ago. Since then its icy crust has been cold and stiff, preserving this ancient surface for our study," said Torrence Johnson, Cassini imaging team member at JPL.

Cassini's multiple observations of Iapetus will help to characterise the chemical composition of the surface; look for evidence of a faint atmosphere or erupting gas plumes; and map the night-time temperature of the surface. These and other results will be analysed in the weeks to come.

Source: European Space Agency

Citation: Saturn's moon Iapetus is the yin-yang of the solar system (2007, September 13)  
retrieved 24 April 2024 from  
<https://phys.org/news/2007-09-saturn-moon-iapetus-yin-yang-solar.html>

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