

THE SURFACE OF IAPETUS. Tilmann Denk (FU Berlin) and the Cassini ISS Team.

Iapetus, the Saturnian moon with the extreme global brightness dichotomy, has been studied intensively by the instruments of the Cassini spacecraft since Saturn arrival in 2004. Among the most important discoveries and observations by the Imaging experiment (ISS) were an equatorial ridge that spans around Iapetus' circumference over most parts of the leading side, several huge basins with diameters of several hundred kilometers, the true nature of the "moat" feature as a crater, a color dichotomy in contrast and in addition to the brightness dichotomy, the correlation between bright- and dark-rim craters on the leading side with planetographic latitude, the absence of bright spots (bright-floor craters) larger than $\sim 1/2$ km within the dark terrain, or the first images of the southern hemisphere and the leading side.

Furthermore, an unambiguous confirmation and good quantification of the Voyager discoveries of the ellipsoidal to irregular shape of Iapetus, of huge bright mountains on the anti-Saturn side, of the old surface age, of numerous craters within the dark terrain, or of the suspected similarity of the crater-size-frequency distribution on the dark terrain compared to the bright terrain was possible.

Best imaging coverage so far is at $\sim 3/4$ km/pxl resolution over the northern leading side from the "B/C flyby" at New-Year's Eve 2004/2005. On September 10, 2007, the first and only targeted Cassini flyby within 6 years into orbit is scheduled, bringing the spacecraft as close as 1615 km to the surface. Closest approach will occur over the highest parts of the ridge. On the outbound trajectory leg, the trailing side will be visible at low phase angle.