



## The distribution of icy particles on Enceladus

**R. Jaumann** (1), K. Stephan (1), R. Wagner (1), G. B. Hansen (2), R.H. Brown (3) & the VIMS Science Team

(1) DLR, Inst. for Planet. Expl. Rutherfordstrasse 2, 12489 Berlin, Germany; (2) Planetary Science Institute, 22 Fiddler's Rd., Winthrop WA 98862-0667; (3) Dept. Pl. Sci and LPL, U. of AZ, Tucson AZ 85721-0092 (Ralf.Jaumann@dlr.de).

Morphologically the surface of Enceladus exhibits three major terrains: moderately cratered plains, plains with almost no craters and small elongated areas of tectonic resurfacing by cracks, ridges, faulting and folding (sulci) (1). Compositionally the surface of Enceladus is build up almost completely by water ice (2). However, the size of the water ice particles varies regionally within an order of magnitude indicating exogenic and endogenic surface alteration processes. As the band depths of water ice absorptions are sensitive to the particle size, different absorptions can be used to map the grain size on the surface. The Visible and Infrared Mapping Spectrometer (3) observed Enceladus during three Cassini fly-bys in 2005. Based on these data we found ice particle sizes between 2  $\mu\text{m}$  and over 100  $\mu\text{m}$  with the smallest grains in the old cratered plains and the largest in the tectonically resurfaced areas. (1) Kargel, J.S., Pozio, S., *Icarus* 119, 385 (1996); (2) Brown, R.H., et al., *Science*, in press (2006); (3) Brown, R.H., et al., *Space Science Rev.* 115, 111 (2005).