



Cassini VIMS and Altimeter joint study of Titan surface

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Onboard the Cassini spacecraft, the VIMS (Visual and Infrared Mapping Spectrometer) instrument takes hyperspectral images in the range 0.3 to 5.2 μm (Brown et al., 2003). Since July 2004, VIMS acquired image cubes with spatial resolution ranging from a few tens of kilometers down to less than one kilometer per pixel, demonstrating its capability for mapping Titan's surface and studying its composition and geology (Sotin et al., 2005; Rodriguez et al., 2006; Barnes et al., 2007). Also in the Cassini orbiter payload is a Ku-band RADAR experiment that can operate in altimeter mode. Exclusively dedicated to Titan's observations, the altimeter active mode has been designed primarily to retrieve Titan's surface elevation and study its topography (Elachi et al., 1991, 2005).

We present here the comparative analysis of the altimeter and the VIMS data acquired over the same regions of Titan. In particular, we present here the first non-topographic analysis of Cassini altimeter data along with a tentative correlation with VIMS observations. We show that Cassini altimetry data can also be used to retrieve the radar reflectivity, as it is done on the Earth in icy contexts like in the Antarctic, and then can be used to help constraining Titan's surface nature.