P13B-2126: Dark Areas on Equatorial Regions of Titan: Implication in Particles Size of Water-Ice and Combination with Tholins.

ABSTRACT

Monday, 14 December 2015
13:40 - 18:00
Moscone South - Poster Hall

Since the equatorial regions of Titan have been fully observed by the Visible and Infrared Mapping Spectrometer (VIMS) [1], the analysis of false-color composite allows distinguishing three mains units: bright, bluish and brownish units [2-4]. This distinction can be enhanced by using ratios of VIMS channels that allow emphasizing subtle difference of spectral behavior of the units, especially at short wavelengths (below 2 µm). The VIMS – bluish unit is mostly enriched in water-ice particles, which consist of particles exposition derived from the high standing water-ice substrate and deposited on the lowlands after fluvial/pluvial processes [5] and impact [6]. This spectral unit is mainly located at the frontier of the large bright plateaus, and hence considered as a transition zone to the VIMS – brownish unit corresponding to the Radar dune-fields [7]. Whereas these brownish dunes consist on atmospheric aerosols, named tholins [4] contaminated with particles of water ice. High resolution observations of VIMS (less than 1 km per pixel), show local transition zones between the bright material and the brownish dunes, suggesting weathering and erosional processes (e.g. Bohai Sinus and the Huygens Landing site). The reason of these spectral variations in this bluish unit might be due to physical properties variations related to erosional processes occurring on the bright plateaus [5,8], such as particles sizes and the degree of mixture with tholins. Our approach enables a better understanding of the distribution of the water-ice grains in terms of particles-size and mixtures with tholins at local and global scale.

Reference: [1] Brown, R. H. et al. (2005) *SSR*. [2] Barnes, J. W. et al. (2007) *Icarus*, 186 (1). [3] Soderblom, L. A. et al. (2007) *PSS*, 55 (13). [4] Langhans, M. H. et al. (2011) *PSS*, 60. [5] Jaumann, R. et al. (2008) *Icarus*, 197. [6] Le Mouelic, S. et al. (2008) *JGR*, 113 (E04003). [7] Rodriguez, S. et al. (2013) *Icarus*. [8] Jaumann, R. et al. (2009) *LPSC*.

NAVIGATION

Home

Section/Focus Group

Events

Co-Sponsored

Cross-Listed

SWIRL Themes

AGU On-Demand

EPoster

Index Terms

Meeting Resources

Meeting Website

Technical Support

Click to add an item to 'My Schedule'.

Click ☆ to add/remove an item to 'My Favorites'.

Click to add/remove a person to 'My Contacts'.

Click to access your Schedule

Due to a known issue with Firefox, it is recommended that any printing be done in an alternate browser.

German Aerospace Center DLR Berlin

DLR - German Aerospace Center

Katrin Stephan

German Aerospace Center DLR Berlin

DLR - German Aerospace Center

Ralf Jaumann

DLR - German Aerospace Center

Stephane Le Mouelic

LPGN Laboratoire de Planétologie et Géodynamique de Nantes

Robert Brown

University of Arizona

View Related Events

Session: Titan: Understanding Saturn's Mysterious Moon II Posters

Section/Focus Group: Planetary Sciences

Day: Monday, 14 December 2015