Geophysical Research Abstracts, Vol. 8, 09402, 2006
SRef-ID: 1607-7962/gra/EGU06-A-09402

Titan's surface albedo from near-infrared CFHT/FTS and VLT spectra and its modeling dependence on the methane absorption

A. Negrao (1,2,3), A. Coustenis (1), M. Hirtzig (1,4), E. Lellouch (1), J.-P. Maillard (5), P. Rannou (3), E. Gendron (1), P. Drossart (1), M. Combes (1), B. Schmitt (6)

(1) LESIA, Observatoire de Paris-Meudon, Meudon, France, (2) Observatorio Astronomico de Lisboa, Lisboa, Portugal, (3) Service d'Aeronomie/IPSL, Univ. Versailles St-Quentin, France, (4) Laboratoire de Planetologie et Geodynamique, Nantes, France, (5) Institut d'Astrophysique de Paris, France, (6) Laboratoire de Planetologie, Grenoble, France;
(alberto.negrao@obspm.fr/0033145077469)

We have observed Titan in a series of campaigns from 1991 to 2005 between 0.8 and 2.5 microns with the Fourier Transform Spectrometer (FTS) at the Canada France Hawaii Telescope (CFHT), the Infrared Spectrometer And Array Camera (ISAAC) at the ESO Very Large Telescope (VLT), and the NACO adaptive optics system, also at the VLT. This dataset allows us to explore five methane windows at 0.94, 1.08, 1.28, 1.58 and 2 microns at different longitudes and resolutions. In particular our 2005 data spectra, taken two days after Huygens's landing, include the Huygens probe landing site and surrounding dark and bright areas. By applying a microphysical and radiative transfer model, with fractal haze particles, we were able to retrieve atmospheric and surface information. A comparative study of methane absorption coefficients currently available from different sources was also performed here demonstrating the great sensitivity of surface inferences to this model input. This is useful for studies of the composition of the Titan surface.