Titan’s extended atmosphere: INCA results

P. C. Brandt (1), K. Dialynas (2,3), I. Dandouras (4,5), D. G. Mitchell (1), P. Garnier (4,5), S. M. Krimigis (1,2)
(1) Applied Physics Laboratory, Johns Hopkins University, Laurel, MD, USA (Pontus.Brandt@jhuapl.edu), (2) Office for Space Research and Applications, Academy of Athens, Athens, Greece, (3) Department of Astrophysics, Astronomy and Mechanics, Faculty of Physics, University of Athens, Greece, (4) Centre d’Etude Spatiale des Rayonnements, Université de Toulouse, 31028 Toulouse, France, (5) CNRS, UMR 5187, 31028 Toulouse, France

During the Titan flybys INCA obtained ENA images of the interaction between the atmosphere of Titan and the magnetospheric ion fluxes sweeping over Titan with subcorotational speeds (~145 km/s). The ENA images show highly variable ENA fluxes from Titan due to the structure in the magnetospheric ion population. The ENA fluxes extend out to several 10,000 km altitude from the surface of Titan. We use a parametric neutral atmosphere model consisting of H, H2, N, and CH4 to simulate Hydrogen and Oxygen ENA images in the 20-80 keV range and compare to the images obtained by INCA. Several events are analyzed to investigate how the H2 distribution falls off with altitude.