Geophysical Research Abstracts
Vol. 13, EGU2011-10120, 2011
EGU General Assembly 2011

Recent CO_2 results obtained by the SOIR instrument on board Venus Express: Terminators dynamic investigation

Arnaud Mahieux (1), Séverine Robert (1), Valérie Wilquet (1), Rachel Drummond (1), Ann Carine Vandaele (1), Anna Fedorova (2), Jean-Loup Bertaux (3,4)

(1) IASB - BIRA, Atmosphere, Brussels, Belgium (arnaud.mahieux@aeronomie.be, +32 23730426), (2) Space Research Institute (IKI), 84/32 Profsoyuznaya, 117810 Moscow, Russia, (3) LATMOS, 11 Boulevard D'Alembert, 78280 Guyancourt, France, (4) IPSL, Université UVSQ, 78 Saint-Quentin en Yvelines, 78280 Guyancourt, France

The SOIR instrument performs solar occultation measurements in the IR region (2.2 - 4.3 μm) at a resolution of 0.12 cm^{-1}, the highest on board Venus Express. It combines an echelle spectrometer and an AOTF (Acousto-Optical Tunable Filter) for the order selection.

The wavelength range probed by SOIR allows a detailed chemical inventory of the Venus atmosphere at the terminators in the upper mesosphere and lower thermosphere (80 to 180 km) with an emphasis on vertical distribution of the gases. In particular, measurements of CO2 density and rotational temperature vertical profiles have been routinely performed. Discrepancies with the hydrostatic equilibrium allowed to derive information concerning the dynamical behavior of the atmosphere at the terminators. The approach as well as some results will be described.