Geophysical Research Abstracts
Vol. 12, EGU2010-11383, 2010
EGU General Assembly 2010

Sounding of aerosols with IASI – observations, retrievals and open questions

Lieven Clarisse (1), Daniel Hurtmans (1), Fred Prata (2), Federico Karagulian (1), Cathy Clerbaux (1,3), Martine De Mazière (4), and Pierre-Francois Coheur (1)

(1) ULB, Chimie Quantique et Photophysique, Brussel, Belgium (lclariss@ulb.ac.be), (2) Climate and Atmosphere Department, NILU, 2027 Kjeller, Norway., (3) Université Paris 6, CNRS, LATMOS/IPSL, France., (4) Belgian Institute for Space Aeronomy, 3 av. Circulaire, Brussels, Belgium.

Multispectral infrared sounders were first designed for the sounding of atmospheric aerosols, as they were especially useful in capturing the broadband extinctions in the 650-1250 cm-1 range. A manifold of different techniques for retrieving aerosol properties such as optical depth and aerosol radii is available for such instruments. With the advent of improved sounders, new techniques should be developed, taking full advantage of the high spectral resolution the instruments have to offer.

In this talk we will give an overview of aerosols observations from IASI (e.g. mineral dust, volcanic, biomass burning aerosols) and introduce a novel retrieval algorithm, capable of distinguishing different classes of aerosols and deriving mass burdens and particle sizes. The new algorithm is different from existing codes in it does not rely on pre-calculated spectra, the use of micro windows or two-step retrievals. The simultaneous retrieval operates on a broad spectral range that exploits the full potential of current state of the art infrared sounders such as AIRS and IASI and should be particularly useful for studying major pollution events.