Geophysical Research Abstracts, Vol. 9, 08938, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-08938

Four years of CO_2 monitoring from space using Aqua/AIRS high spectral resolution infrared observations. Implication for MetOp/IASI

C. Crevoisier (1,2), N. Scott (1), A. Chédin (1), G. Dufour (1,3) and R. Armante (1)

(1) LMD, Ecole Polytechnique, Palaiseau, France, (2) AOS, Princeton University, USA, (3) (cyril.crevoisier@lmd.polytechnique.fr / Fax: +33 (0)1 69 33 30 05)

Since the launch of NASA/Aqua on May 2002, four years of observation from the high spectral resolution infrared sounder AIRS and the microwave sounder AMSU have been interpreted in terms of an integrated content of tropospheric carbon dioxide (CO_2). Use has been made of a non-linear inference scheme based on neural networks. Except for a short period from October 2003 to April 2004, during which AIRS observations have been affected by instrumental problem following strong solar eruptions, the retrieved CO_2 seasonal cycle is in remarkably agreement with in-situ observations made in the troposphere by commercial aircrafts and gives access to the increasing trend and amplitude of the seasonal cycle of CO_2 over a long time period.

Following the launch of the hyper-spectral infrared sounder IASI on board ESA/MetOp on October 2006, a set of IASI channels presenting optimum characteristics for CO_2 estimation has been selected, based on our knowledge of AIRS. Tests performed with simulated observations show that the use of these IASI channels in the retrieving procedure will significantly improve tropospheric CO_2 monitoring from space.