Geophysical Research Abstracts
Vol. 20, EGU2018-15484-1, 2018
EGU General Assembly 2018

BASCOE Reanalysis of Aura MLS (BRAM) with a focus on stratospheric polar winter conditions

Quentin Errera (1), Geir Braathen (2), Simon Chabrillat (1), Yves Christophe (1), Jonas Debosscher (1), Michelle Santee (3), and Sergey Skachko (4)

(1) Belgium Institute for Space Aeronomy (BIRA-IASB), Brussels, Belgium (quentin@aeronomie.be), (2) WMO, Geneva, Switzerland, (3) Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California, (4) Environment and Climate Change Canada, Dorval, Canada

The Belgian Assimilation System for Chemical ObsErvations (BASCOE) has been used to reanalyse Aura MLS observations. The system is based on the Ensemble Kalman Filter (EnKF) and a Chemistry Transport Model (CTM) involving 58 chemical species focusing on the stratosphere. The CTM accounts for the advection, the chemistry (gas phase, photolysis and heterogeneous reactions), the micro-physics of the Polar Stratospheric Cloud (PSC) and water dehydration in the stratosphere. The model is driven by ERA-Interim dynamical fields with a horizontal resolution of 2.5° in latitude and 3.75° in longitude. Vertically, the model has 37 levels from the surface to 0.1 hPa which correspond to the ERA-Interim levels in the stratosphere and a subset of them in the troposphere. The period of the reanalysis starts in August 2004, at the beginning of the MLS mission, and go up to the present. Assimilated species are: O_3, CO, H_2O, N_2O, HNO_3, HCl, ClO and CH_3Cl. BRAM analyses are delivered every 6 hour and are publicly available (see http://strato.aeronomie.be > Datasets > BRAM).

This contribution will focus on BRAM analyses of O_3, H_2O, N_2O, HNO_3, HCl and ClO within stratospheric polar winter conditons. In particular, these analyses will be evaluated against assimilated MLS observations and independent observations taken by ACE-FTS, MIPAS and WOUDC ozone sondes.