



GEMS stratospheric ozone evaluation

F. Daerden(1), H. Flentje(2), O. Stein(3), J. Williams(4), V. Huijnen(4), P. Moinat(5), J. Flemming(6), A. Dethof(6), M. Schultz(3)

(1)Belgian Institute for Space Aeronomy BIRA-IASB, Brussels, Belgium, (2)Deutscher Wetter Dienst, Hohenpeissenberg, Germany, (3)Forschungszentrum Jülich, Germany, (4)Koninklijk Nederlands Meteorologisch Instituut, De Bilt, The Netherlands, (5)Météo-France, Toulouse, France, (6)European Center for Medium-range Weather Forecasts ECMWF, Reading, UK

The EU FP6 Integrated Project GEMS (Global and regional Earth-system (atmosphere) Monitoring using Satellite and in-situ data) will create a new European system for operational global monitoring and medium- & short-range forecasting of atmospheric chemistry and dynamics, through much improved exploitation of satellite data.

The modeling and assimilation of stratospheric ozone takes place in the GEMS subproject on Global Reactive Gases (GRG). GRG makes use of 3 independent Chemistry-Transport Models (CTMs): MOZART, MOCAGE, and TM5, which are coupled to ECMWFs Integrated Forecast System (IFS). The IFS-CTM coupling is two-fold: IFS sends meteorological data at high temporal resolution to the CTM, while the CTM provides concentration tendencies due to chemical conversion, as well as initial tracer conditions, to the IFS.

This evaluation of stratospheric ozone in GEMS focuses on the test period Nov 2002-Dec 2003 and comprises the standalone CTM simulations, the GEMS coupled system in forecast mode and the GEMS reanalysis in which ozone from SCIAMACHY, MIPAS, GOME and SBUV are assimilated. The evaluation is done using the BASCOE MIPAS-assimilated fields and independent observations such as TOMS total ozone columns.