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GEMS stratospheric ozone evaluation

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The EU FP6 Integrated Project "Global Earth-system (atmosphere) Monitoring using Satellite and in-situ data" (GEMS, http://gems.ecmwf.int/) aims at developing the world's first operational chemical weather system, providing daily analyzes and forecasts for trace atmospheric constituents which are important for climate, air quality and UV radiation. It concerns simulations from the lower troposphere up to the stratosphere, on the global as well as on the regional scale.

The present poster presents the evaluation of stratospheric ozone simulations in the GEMS system during the chosen test year 2003. 4D stratospheric ozone fields produced by several development phases of the GEMS system will be assessed. These comprise the standalone CTMs driven by offline meteorological data, forecasts by the coupled GEMS GRG system for global reactive gases and the GEMS GRG reanalyzes, resulting from the assimilation of ozone from SCIAMACHY, MIPAS, GOME and SBUV. To evaluate the performance of each individual run, we compare the ozone fields with both an independent assimilation system (BASCOE) and independent satellite data (TOMS, POAM and HALOE). We present the standardized evaluation routines we developed to this end and the methods we applied to optimally assess the differences between the chemical models and the observational data.