



## **The 2007 Antarctic ozone hole analysed by assimilated MetOp/GOME-2 data: Influence of PSC parameterisation on reactive trace gases**

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First results of the Antarctic ozone hole 2007 derived from MetOp/GOME-2 (Global Ozone Monitoring Experiment 2) data are presented. Total ozone column observations are routinely assimilated into the chemistry-transport model (CTM) ROSE/DLR at the German Remote Sensing Center (DFD) to obtain chemical analyses of ozone and related species in the stratosphere. A sequential assimilation scheme which follows optimum interpolation of first-guess minus observation residuals with Kalman-Filter-like covariance diagnostics is used. All relevant chemical gas-phase processes as well as heterogeneous processes on sulphuric acid and polar stratospheric clouds (PSCs) are considered by the CTM. The main goal of this study is to analyse the influence of an improved PSC parameterisation on reactive trace gases. Therefore, a new PSC parameterisation considering 10 different heterogeneous reactions on ice particles, on supercooled ternary solutions (STS) and on crystalline nitric acid trihydrate (NAT) was evaluated. This scheme was implemented at RIU and bases on concepts of the Finnish Meteorological Institute (FMI). In the first place effects of the new parameterisation on the chlorine and bromine activation and – as a consequence – on the derived chemical ozone change is discussed for the 2007-ozone-hole episode. Furthermore improvements of model diagnostics like the observation minus forecast error (OMF) of the assimilated species are evaluated. The findings of this study contribute to improve the knowledge on the heterogeneous chemistry in the stratosphere in order

to better predict long term and short term ozone changes.