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The stratospheric response to doubled CO2 in a new chemistry-climate model

M.M. Hurwitz (1), P. Braesicke (1,2) and J.A. Pyle (1,2)

(1) Centre for Atmospheric Science, University of Cambridge, Cambridge, UK, (2) NCAS-Climate, University of Cambridge, Cambridge, UK

Using a new chemistry-climate model, we study the impact of doubling CO_2 on stratospheric dynamics and ozone. Integrating a version of the UK Chemistry and Aerosol model (UKCA) with interactive stratospheric chemistry, at both present-day and doubled CO_2 concentrations, we construct small ensembles by imposing small changes on the initial CO_2 concentrations for each of the ensemble members. We assess the ensemble mean changes in polar vortex strength and ozone concentrations during mid- and late winter, in both hemispheres, and compare these results to results of an earlier study using a chemistry-climate model with parameterised stratospheric ozone chemistry.