Supplement of

Nonlinear response of modeled stratospheric ozone to changes in greenhouse gases and ozone depleting substances in the recent past

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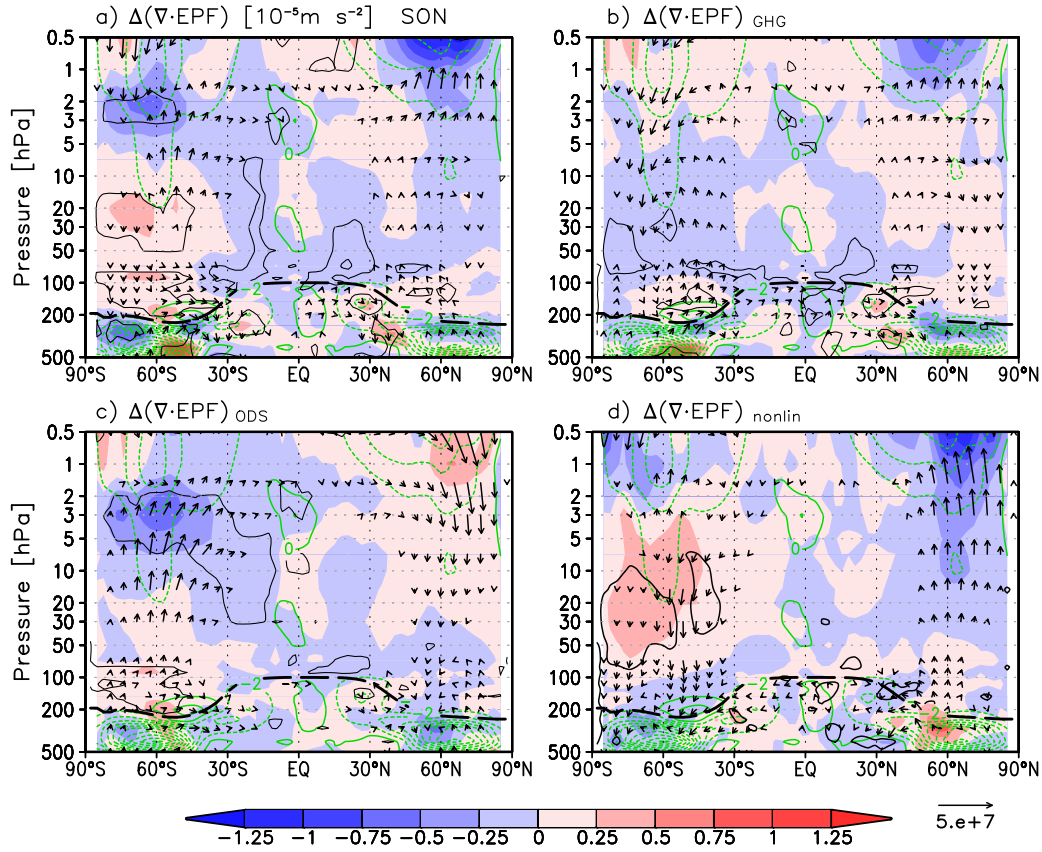*Correspondence to:* S. Meul (stefanie.meul@met.fu-berlin.de)

Fig. S1. Latitude-height section of the changes of the Eliassen-Palm flux vectors (in kg s^{-2}) and the Eliassen-Palm flux (EPF) divergence (in 10^{-5}m s^{-2}) between 1960 and 2000 for the SON mean (a) and the changes due to GHGs (b) and ODSs (c) as well as the nonlinear contribution (d). Black arrows show the change of the EPF vectors; red/blue shading means positive/negative changes of the EPF divergence. The black contour lines indicate statistically significant changes of the EPF divergence on the 95% confindence level. The green contour lines show the climatology of the EPF divergence for the 1960 reference simulation (R1960). Here, the nomenclature is as follows: A negative EPF divergence is named convergence, while a positive EPF divergence is named divergence. The bold dashed line represents the mean tropopause location of the R1960 simulation for the SON mean.
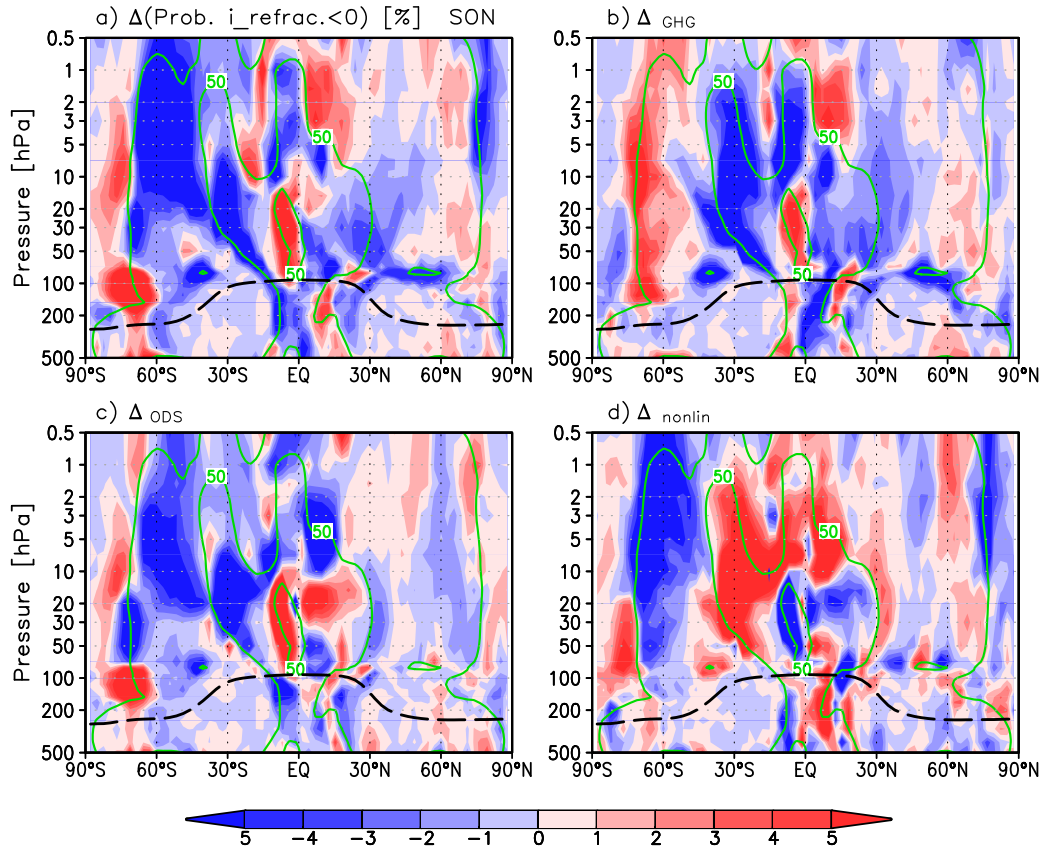
Fig. S2. Same as Figure S1, but for the change in the probability of a negative refractive index. The green contour line shows the 50% probability of a negative refractive index in the R1960 simulation for the SON mean. A negative refractive index means that stationary planetary waves can not propagate and thus a reduced/increased probability of a negative index means that the atmosphere is more/less permeable for waves.
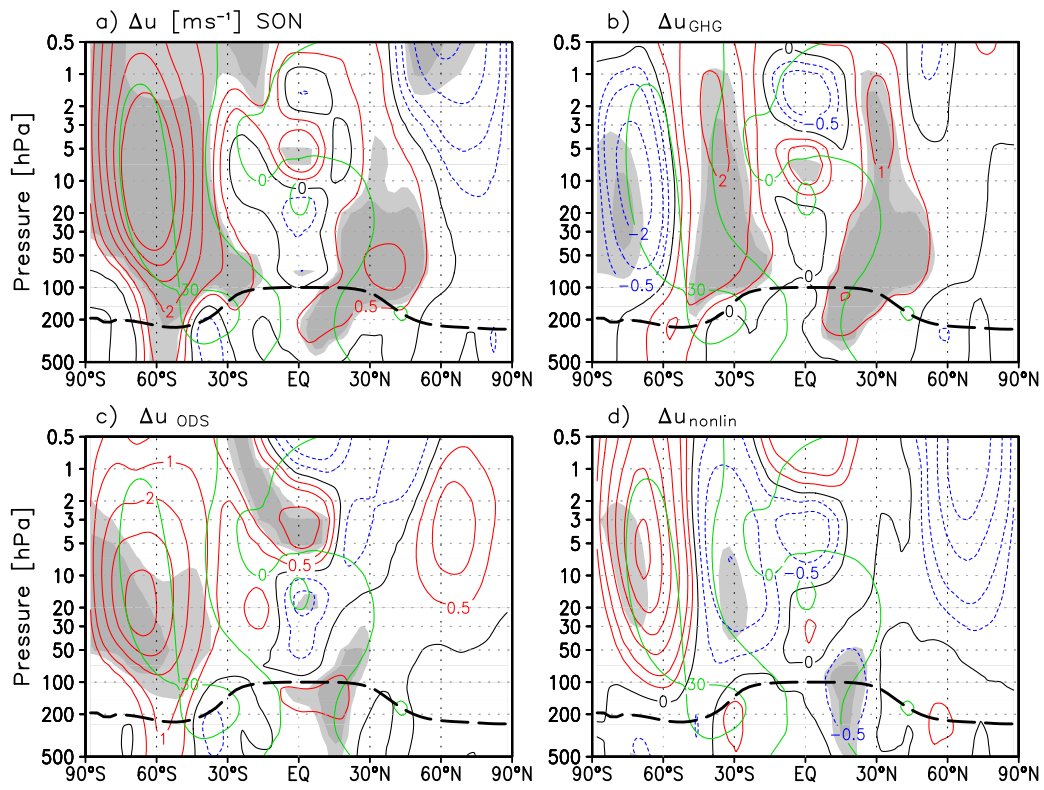
Fig. S3. Same as Figure S1, but for the change in the zonal mean zonal wind in m s^{-1}. The light/dark grey shading indicates statistically significant changes on the 95%/99% confindence level, respectively. The green contour lines (contours 0 and 30 m s^{-1}) show the climatology of the R1960 simulation for the SON mean.