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Supplement of

Atmospheric impacts of chlorinated very short-lived substances over the recent past – Part 2: Impacts on ozone

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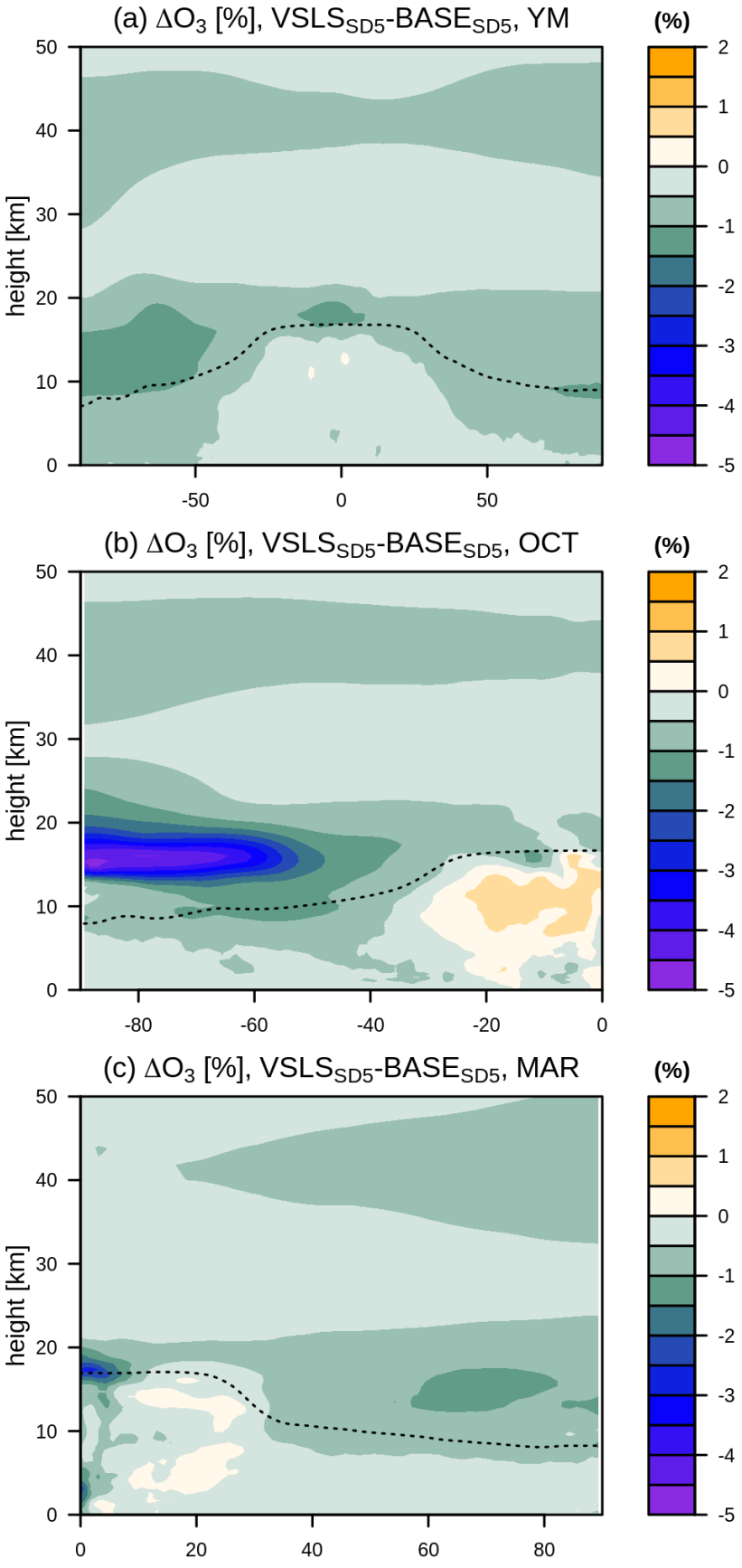

Figure S1. As in Figure 2 but for the mean over 2017-2019 inclusive.

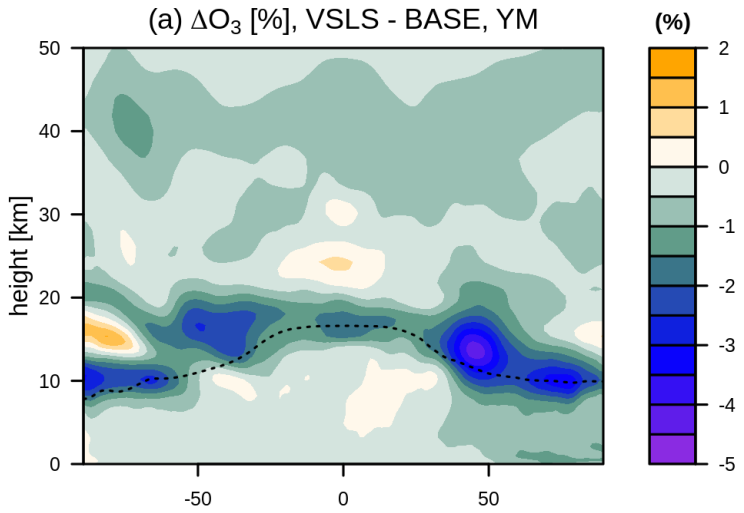

Figure S2. As in Figure 2a but for the ensemble mean difference derived from the free-running simulations (VSLS and BASE).

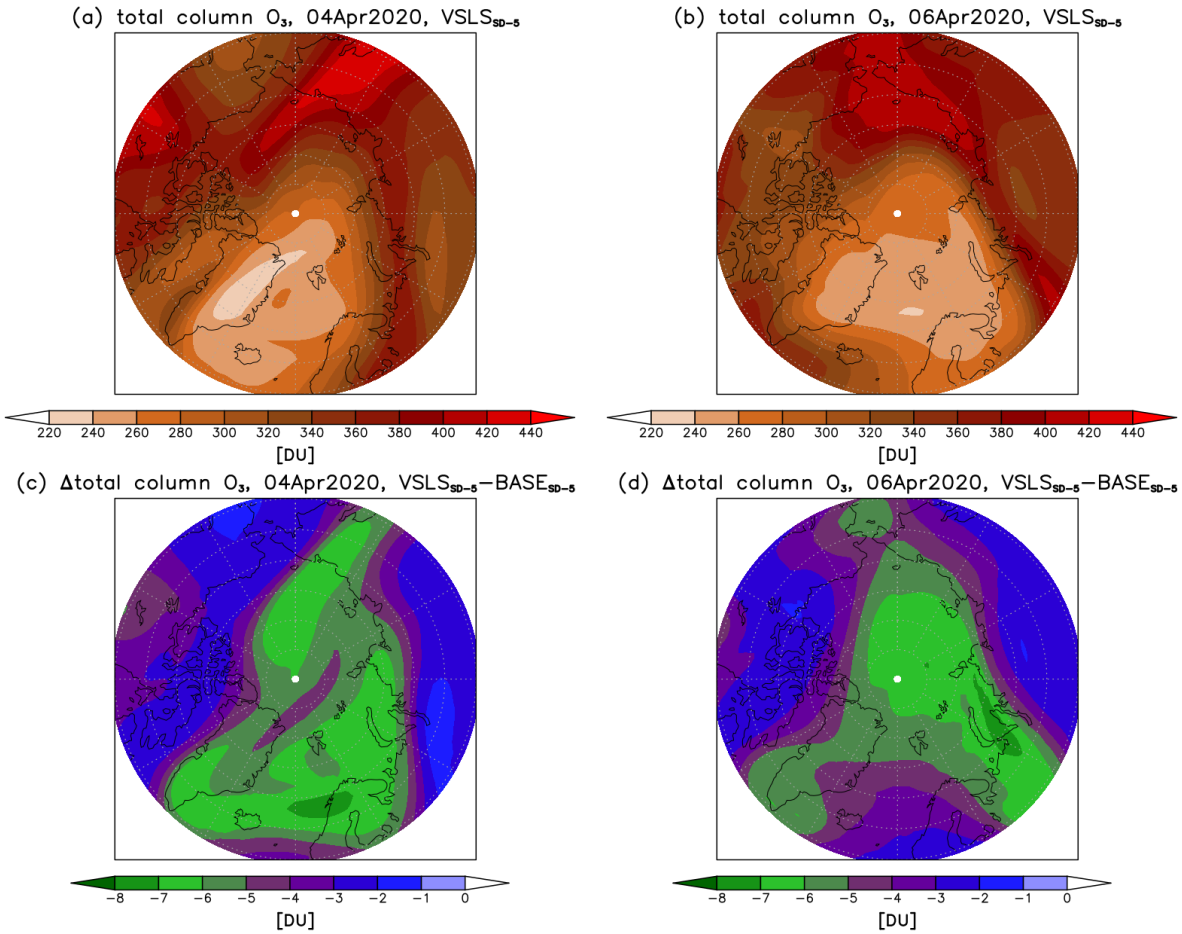

Figure S3. Stereographic projections poleward of 60°N of daily mean total column ozone [DU] on (a) 04 Apr 2020 and (b) 06 April 2020 simulated in the nudged $VSLS_{SD\text{-}5}$ run. Panels (c-d) show the respective differences between $VSLS_{SD\text{-}5}$ and $BASE_{SD\text{-}5}$ runs.

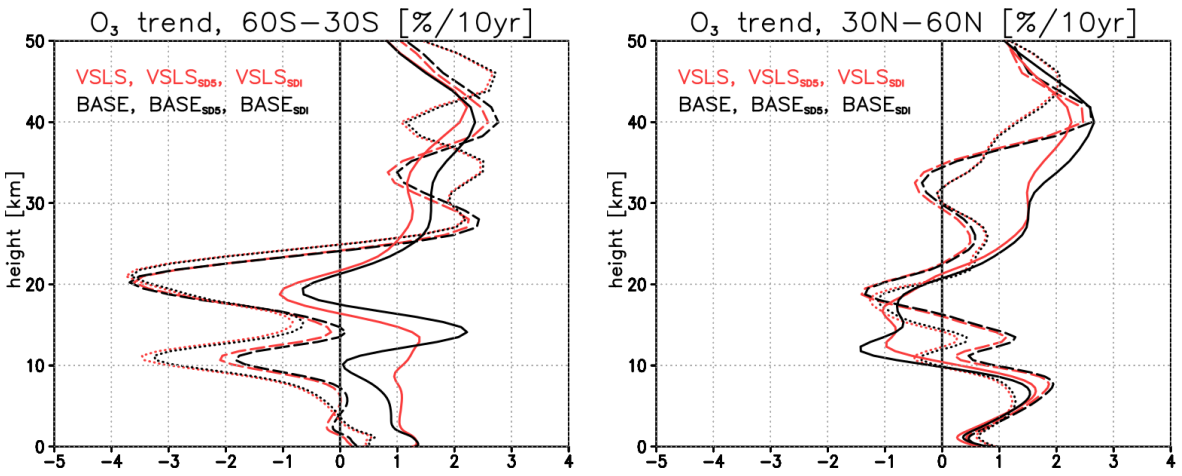

Figure S4. Linear trends in de-seasonalised O_3 mixing ratios over December 1999 to August 2019 [% per 10 years] averaged over (left) 30N-60N and (right) 60S-30S. The simulations with CI-VSLS included are in red, and the simulations without CI-VSLS are in black. Solid lines are for the free-running simulations (VSLS and BASE), dashed lines are for the simulations nudged to ERA5 ($VSLS_{SD-5}$ and $BASE_{SD-5}$), and dotted lines are for the simulations nudged to ERA-Interim ($VSLS_{SD-I}$ and $BASE_{SD-I}$).

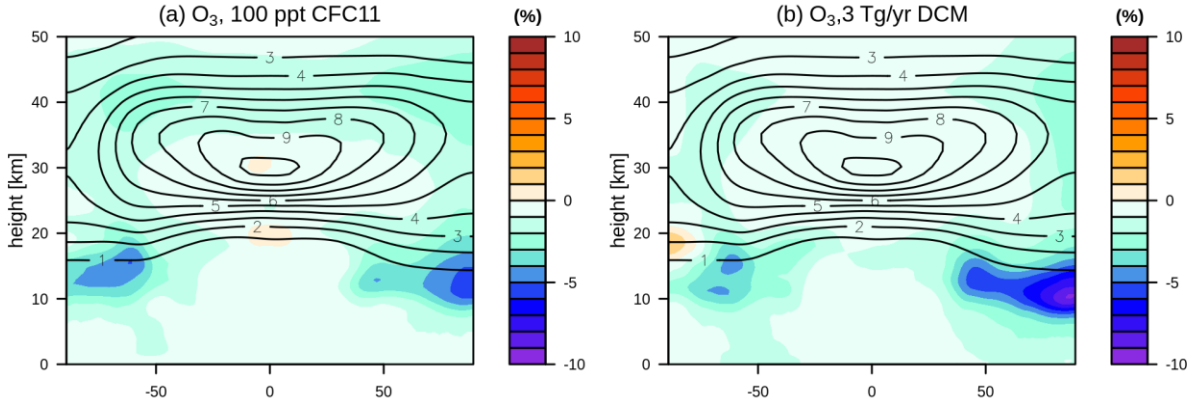

Figure S5. Shading: Yearly mean changes in ozone mixing rations [%] compared to base case simulation for the simulation with (a) additional 100 ppt CFC-11 at the surface, and (b) 3 Tg/yr CH_2Cl_2 emissions. Contours show the corresponding ozone values [ppm] in the base case run for reference.

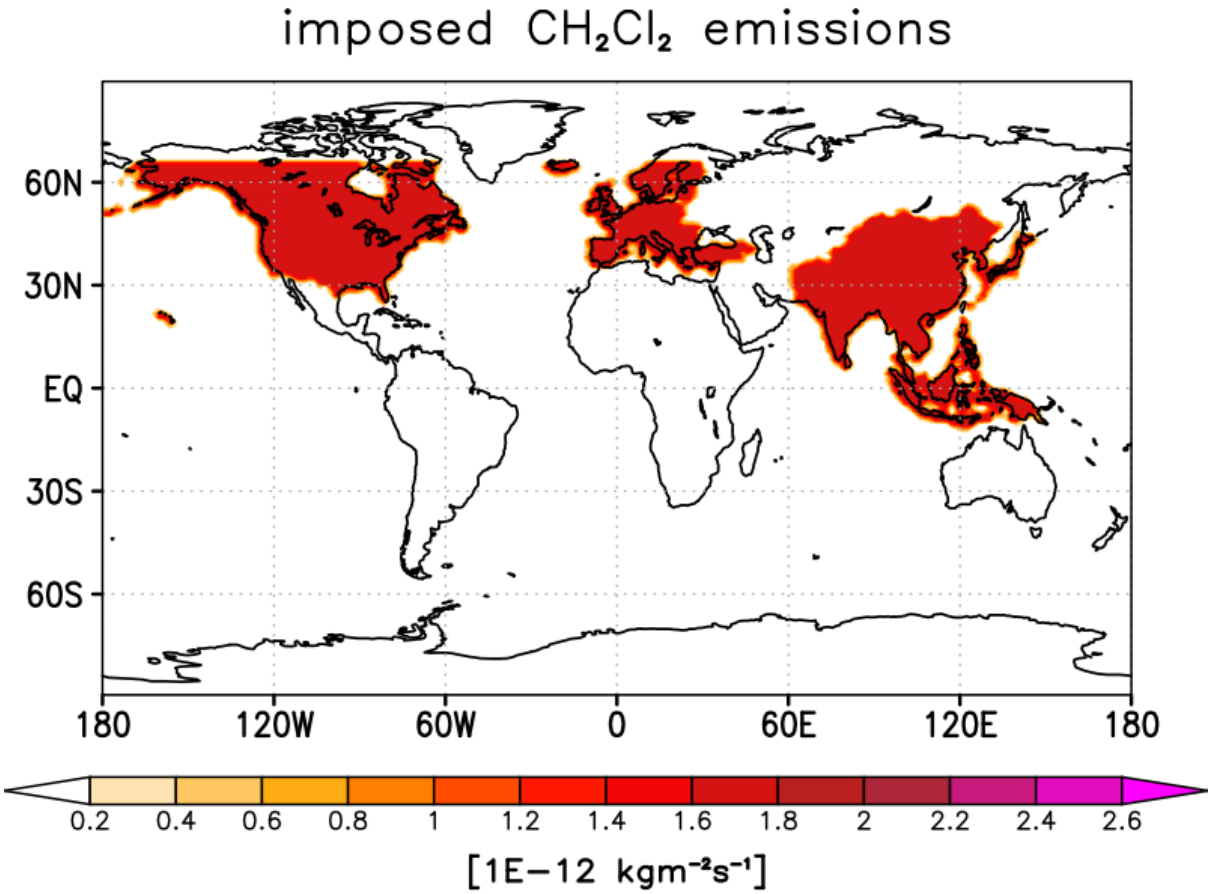

Figure S6. Imposed surface CH_2Cl_2 emissions corresponding to 3 Tg/yr in the time-slice simulations used for the ODP calculation.