

Confirming the substantial contribution of
ozone-depleting halocarbon emissions to global
warming during the second half of the 20th century

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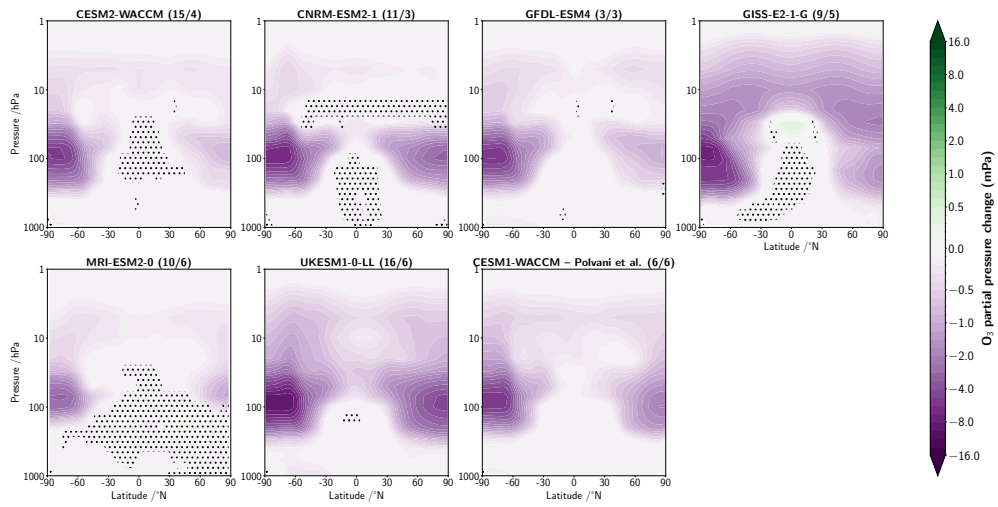
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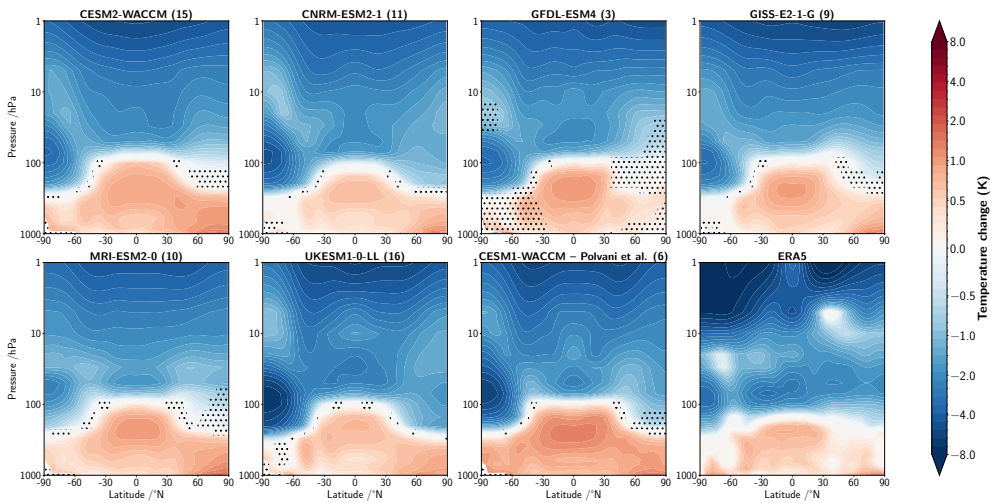
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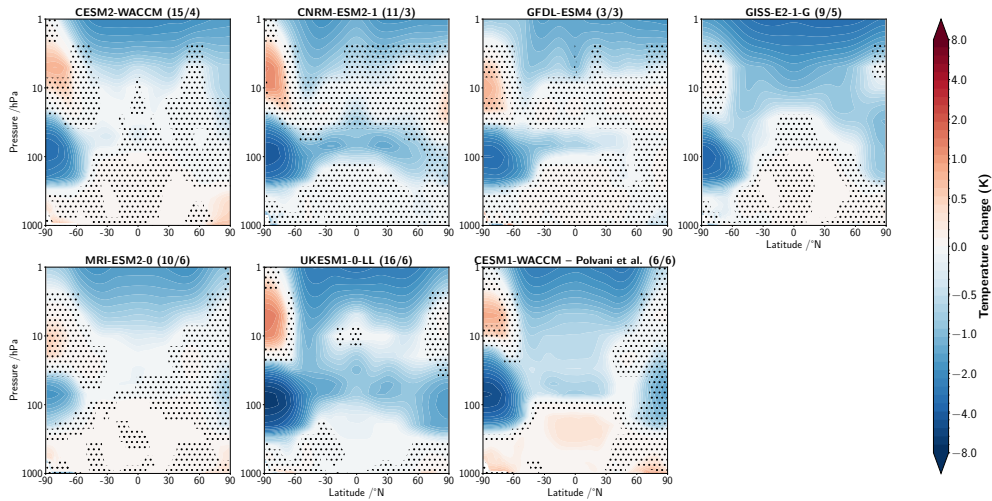
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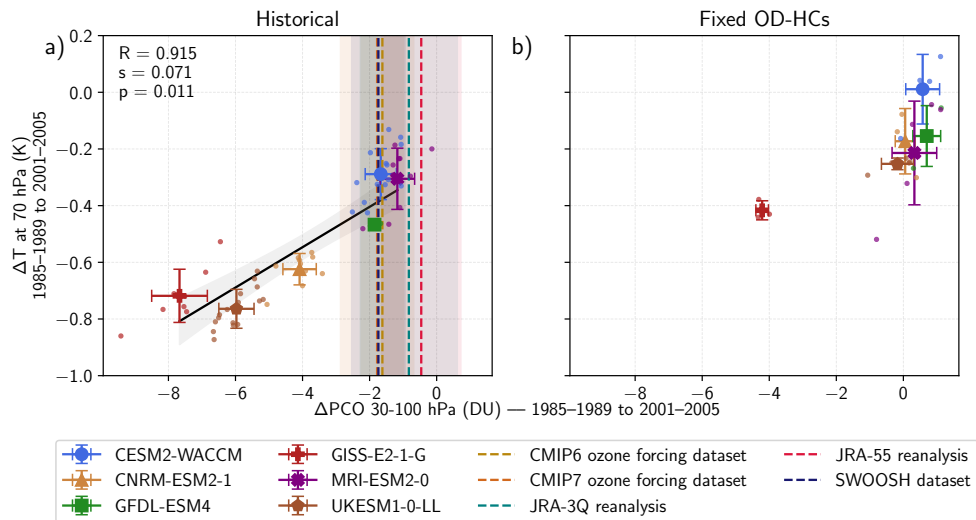
Supplementary Figure 1 HC-induced changes in ozone from 1955–1964 to 1996–2005 derived by contrasting *historical* and *hist-1950HC* simulations. Stippling indicates non-significant changes (5% significance). Note the non-linear colorbar.



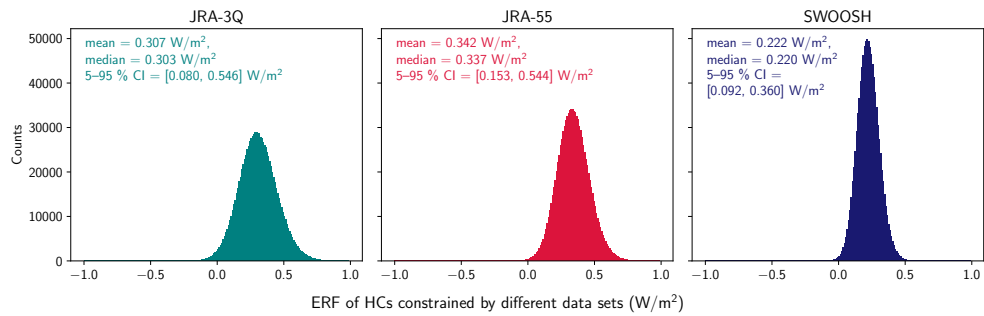
Supplementary Figure 2 Zonal mean historical temperature change from 1955–1964 to 1996–2005 in *historical* simulations. Stippling indicates non-significant changes (5% significance). Note the non-linear colorbar.



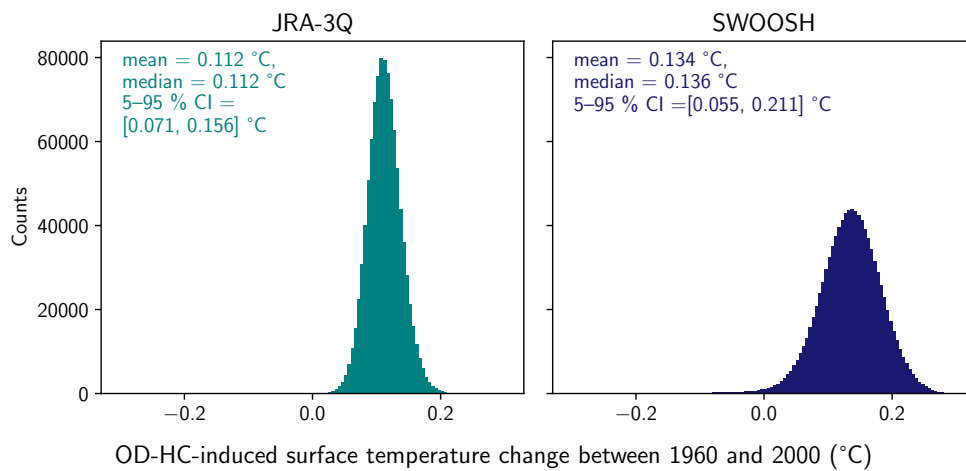
Supplementary Figure 3 Zonal mean HC-induced temperature change from 1955–1964 to 1996–2005 derived by contrasting *historical* and *hist-1950HC* simulations. Stippling indicates non-significant changes (5% significance). Note the non-linear colorbar.



Supplementary Figure 4 Analogous to Figure 2 in the main text, but for the shorter satellite period (1985 – 2005). All (re-analysis) datasets show an ozone depletion that is consistent with the lower range spanned by the AerChemMIP models. Strong ozone depletion is visible in GISS-E2-1-G even in the absence of ozone-depleting substances (panel b), justifying the exclusion of this model for analysis of the satellite period.



Supplementary Figure 5 Derived distributions of the ERF of ozone-depleting halocarbons distributions using JRA-3Q, JRA-55 and SWOOSH together with model output from the satellite period (1985–1989 to 2001–2005).



Supplementary Figure 6 Distributions of the HC-induced surface temperature change calculated from weighted multi-model means using JRA-3Q (1955–1964 to 1996–2005) or SWOOSH (1985–1989 to 2001–2005) PCO changes.