

Supplementary Material to: GEOS-Chem-hyd: enabling source-oriented sensitivity analysis with GEOS-Chem

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1 HEMCO Sensitivity Evaluation

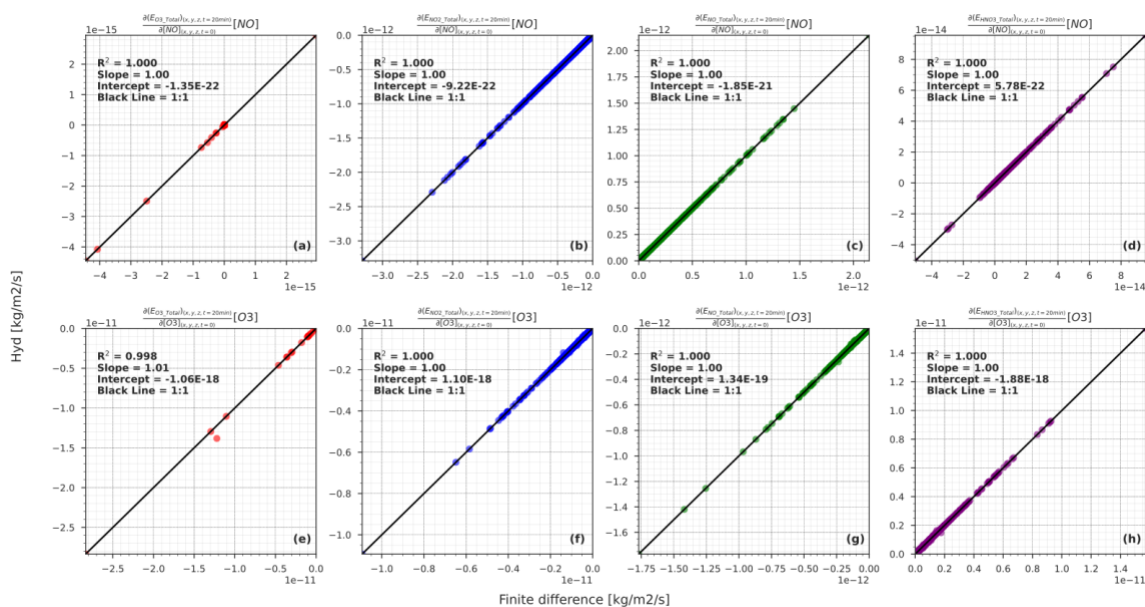


Figure S1: Comparison of the first-order semi-normalized sensitivities of emissions of species at the end of an emission timestep with respect to perturbation in NO concentration (a-d) and O₃ concentration (e-h) for GEOS-Chem-hyd (y-axis) and the central finite difference method (x-axis) at 1% perturbation.

For the second-order sensitivities, only the species with observed non-linear relationships are shown below.

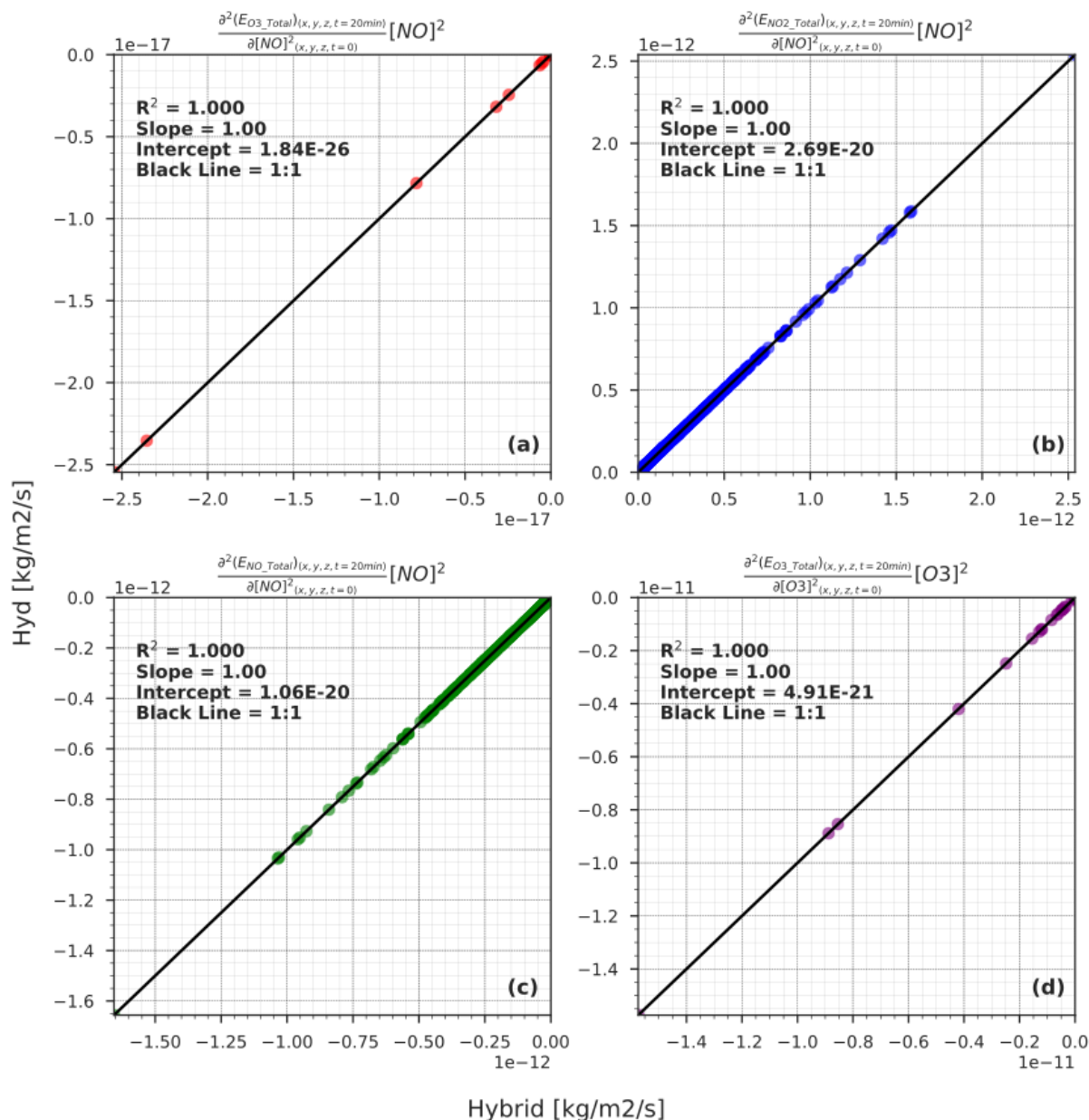


Figure S2. Comparison of the second-order semi-normalized sensitivities of emissions of species at the end of an emission timestep with respect to perturbation in NO concentration (a-c) at 1% perturbation and O₃ concentration (d) at 0.01% perturbation for GEOS-Chem-hyd (y-axis) and the hybrid method (x-axis).