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Supplement of

BVOC–aerosol–climate feedbacks investigated using NorESM

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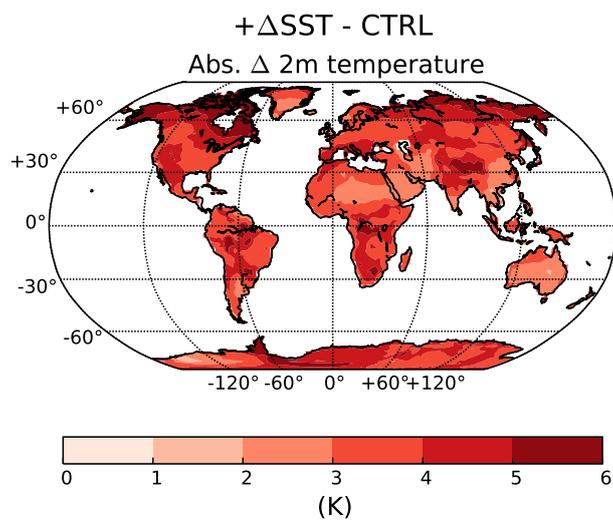


Figure S1. Average absolute difference in the 2 m temperature between the + Δ SST and the CTRL FB ON simulations.

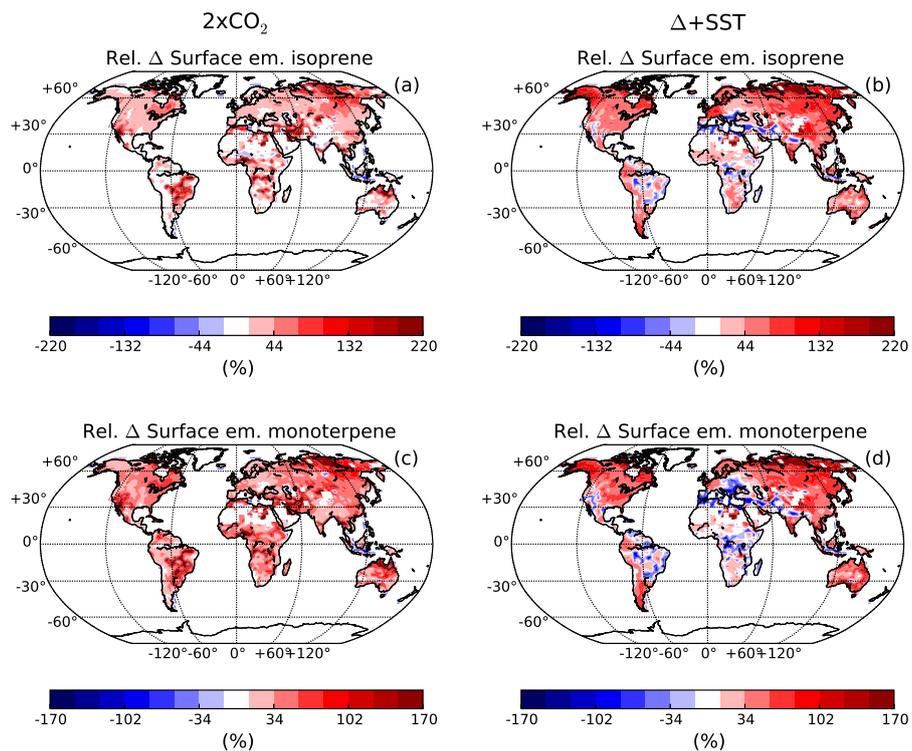


Figure S2. Relative difference in annually averaged the surface emissions of isoprene (a and b) and monoterpenes (c and d) for the $2\times\text{CO}_2$ (a and c) and the $+\Delta\text{SST}$ (b and d) experiments. The relative difference is defined as the $(\text{FB-ON} - \text{FB-OFF}) / \text{FB-OFF}$.

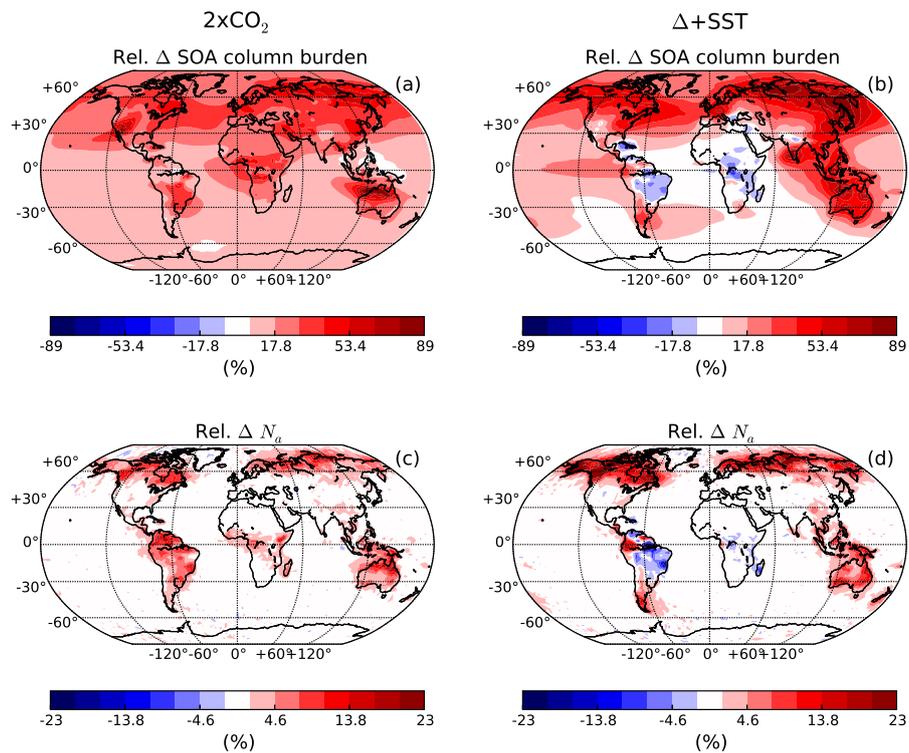


Figure S3. Relative difference in annually averaged column burden of SOA (a and b) as well as N_a in the boundary layer (c and d) for the $2\times\text{CO}_2$ (a and c) + ΔSST (b and d) experiments.

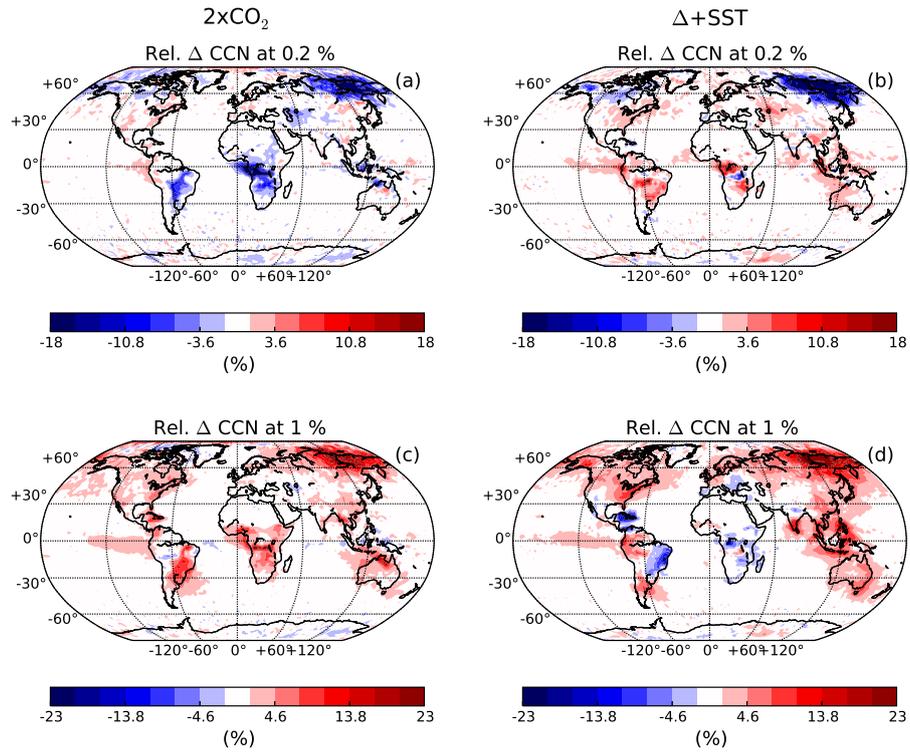


Figure S4. The relative difference between the FB-ON and FB-OFF simulations for the $2\times\text{CO}_2$ (a and c) and $+\Delta\text{SST}$ (b and d) experiment. The difference shown is the annually averaged concentration of CCN at 0.2 % (a and b) and 0.4 % (c and d) supersaturation in the boundary layer.

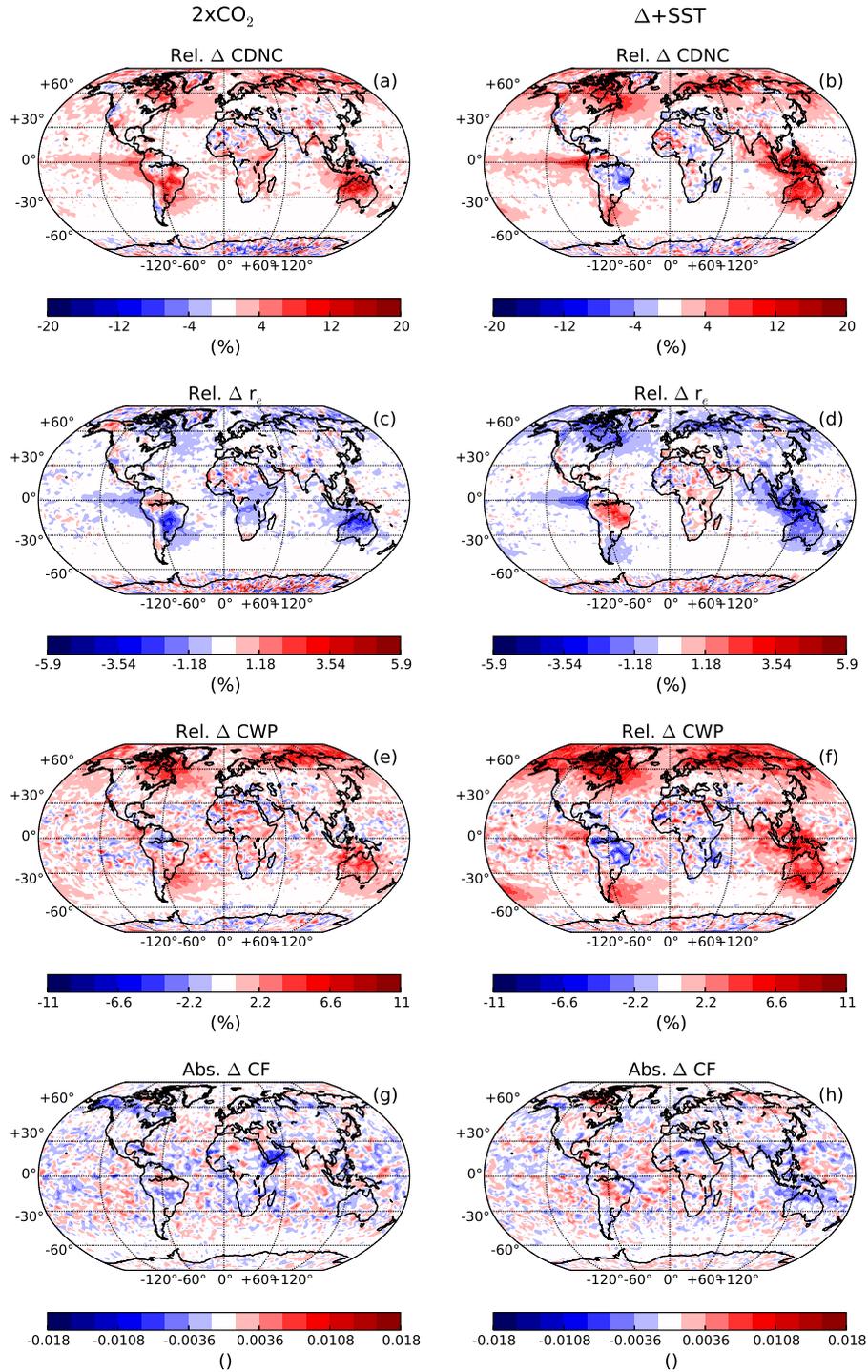


Figure S5. The relative difference in annually averaged CDNC (a and b), r_e (c and d), and CWP (e and f) as well as the absolute difference in annually averaged CF (g and h) between the FB-ON and FB-OFF simulations for the $2\times\text{CO}_2$ (a, c, e, g) and $+\Delta\text{SST}$ (b, d, f, h) experiment.

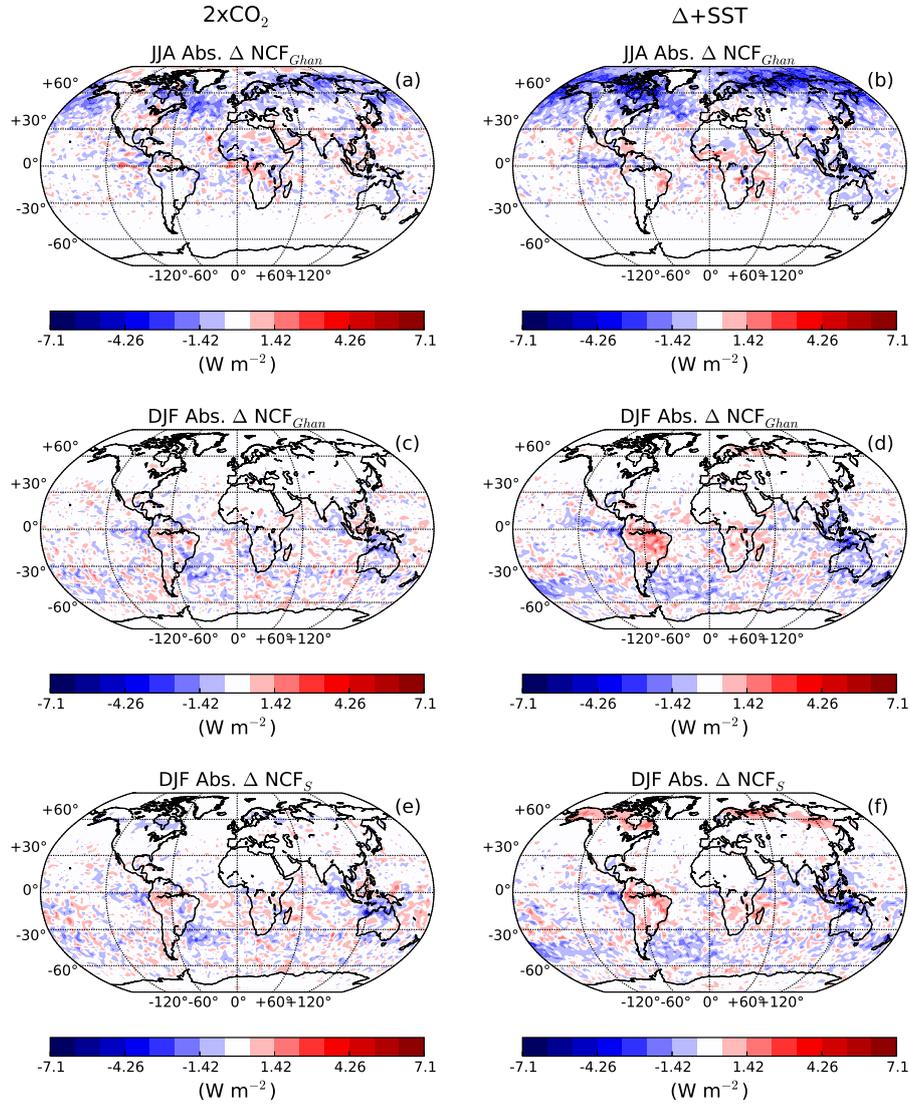


Figure S6. The absolute difference between the FB-ON and FB-OFF simulations for the NCF_{Ghan} during June, July and August (a and b), December January and February (c and d) as well as the NCF_S during December January and February (e and f). The averages are from the $2\times\text{CO}_2$ (a, c, d) and $+\Delta\text{SST}$ (b, d, e) experiment.

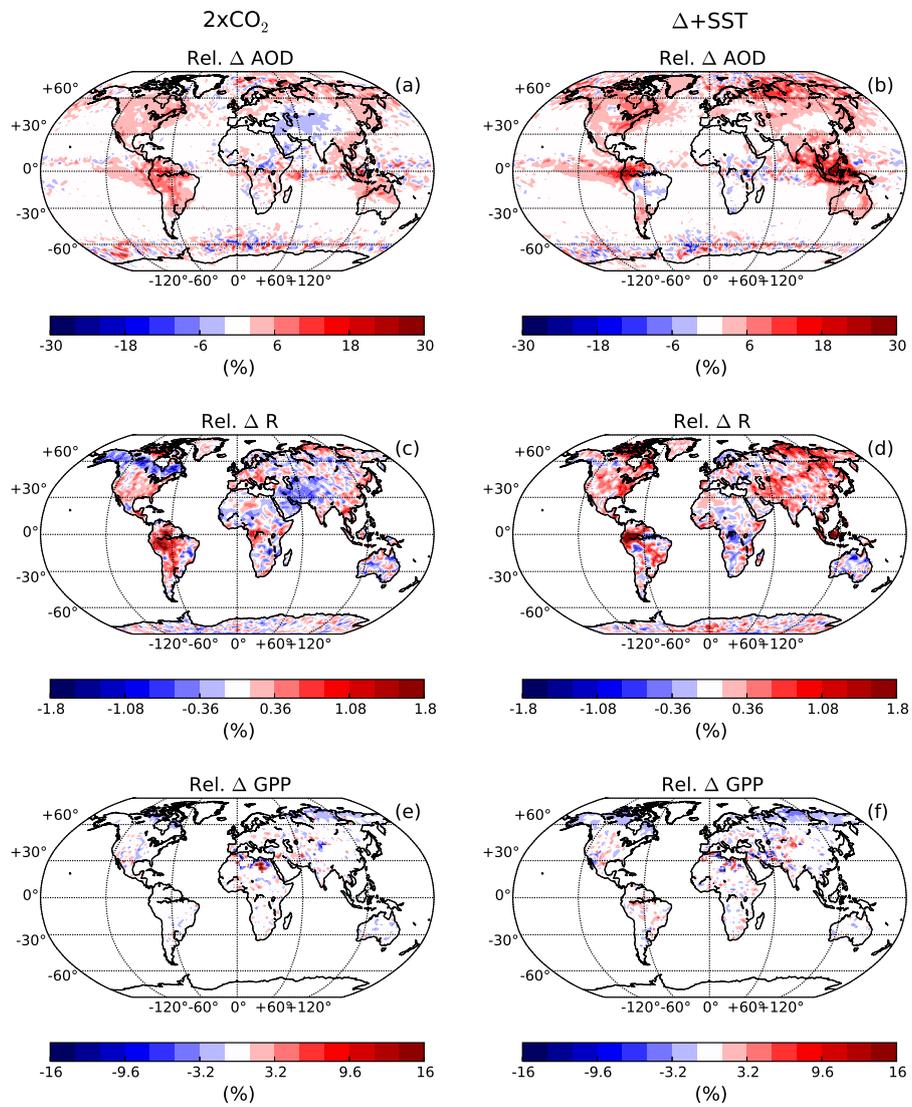


Figure S7. The figure shows the relative difference in annually averaged AOD (a and b), R (c and d) and GPP (e and f) for the 2xCO₂ (a, c, e, g) and +ΔSST (b, d, f, h) experiment.

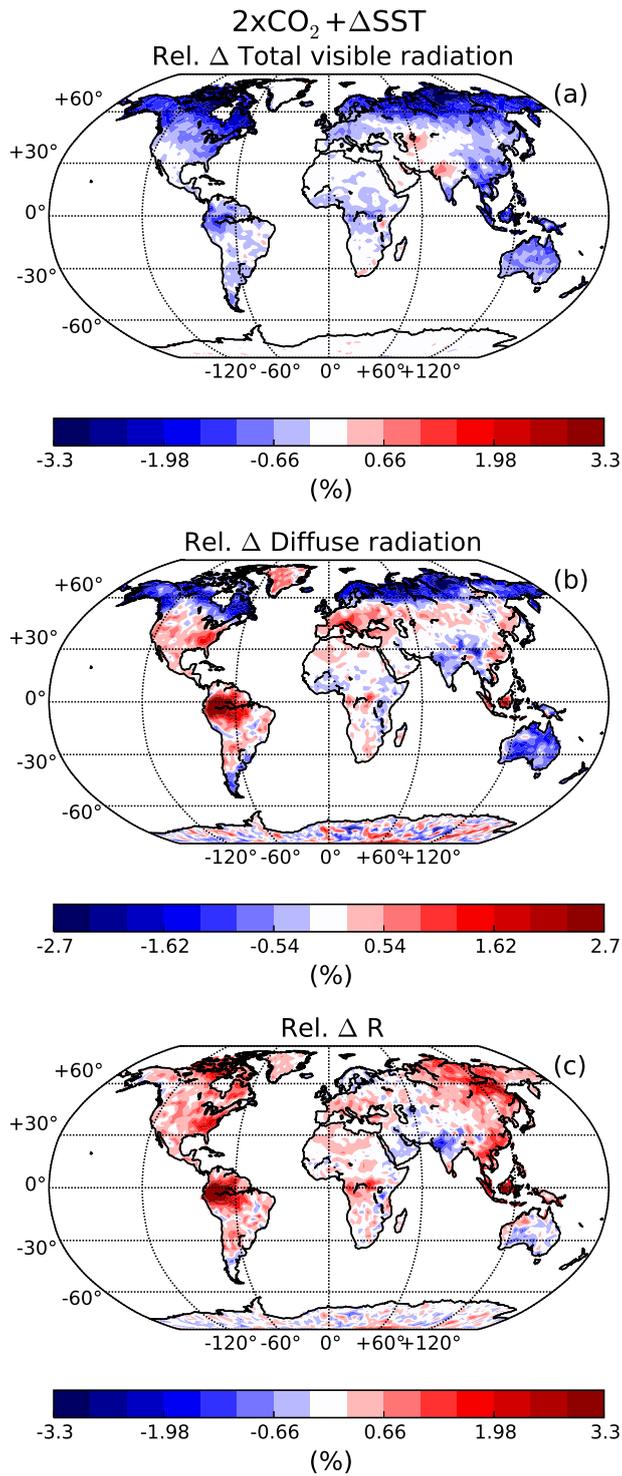


Figure S8. The figure shows the relative difference in total visible radiation (a), diffuse radiation (b) and R (c) for the $2\times\text{CO}_2 + \text{SST}$ experiment.

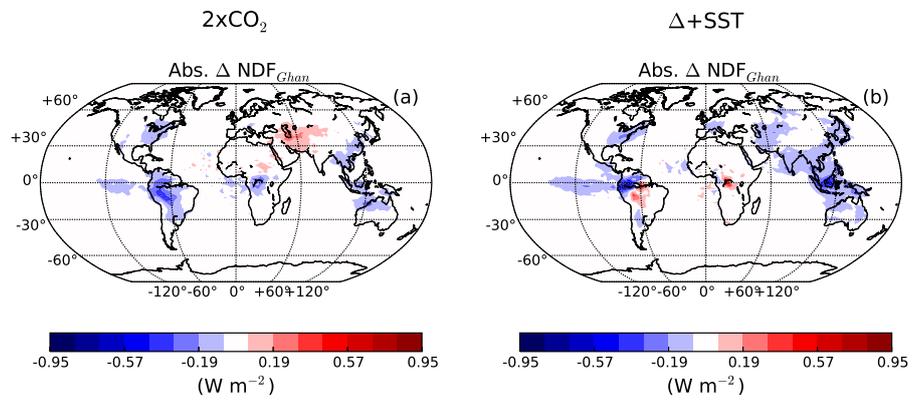


Figure S9. The figure shows the difference in the annually averaged NDF_{Ghan} between the FB-ON and FB-OFF simulations for the $2xCO_2$ (a) and $+\Delta SST$ (b) experiment.