



Supplement of

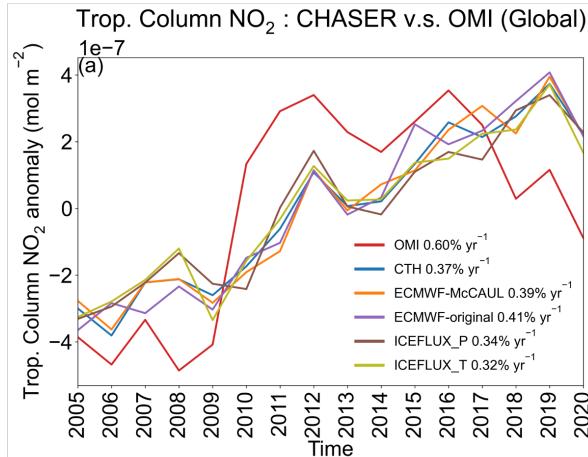
Introducing new lightning schemes into the CHASER (MIROC) chemistry–climate model

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Without nudging



With nudging

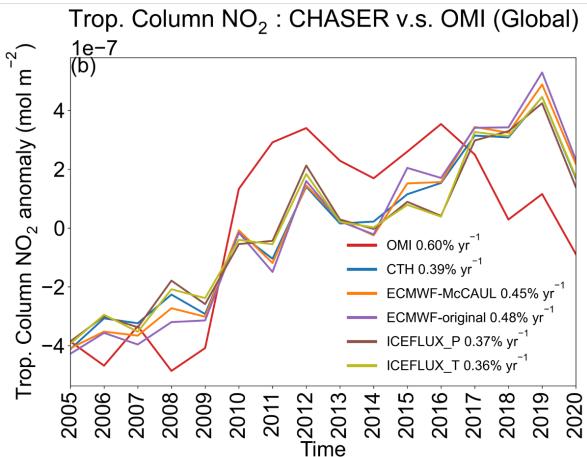
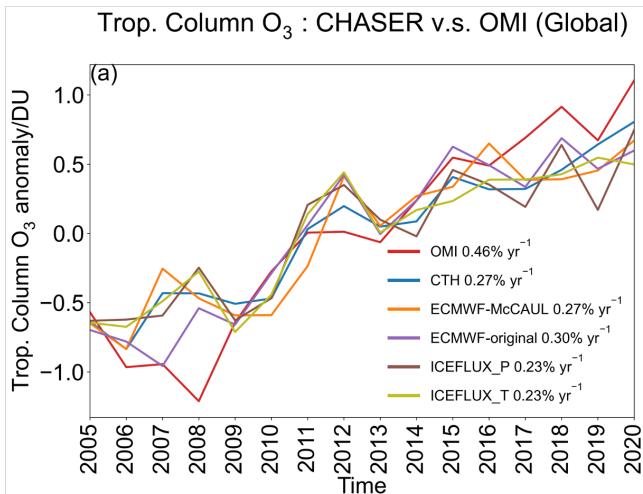


Figure S1: The comparisons between the annual global mean OMI tropospheric column NO₂ anomaly and the CHASER annual global mean tropospheric column NO₂ anomaly from 2005 to 2020. All the modelled trends displayed are simulated with 5 interannually varying LNO_x emissions (The first set of experiments).

Without nudging



With nudging

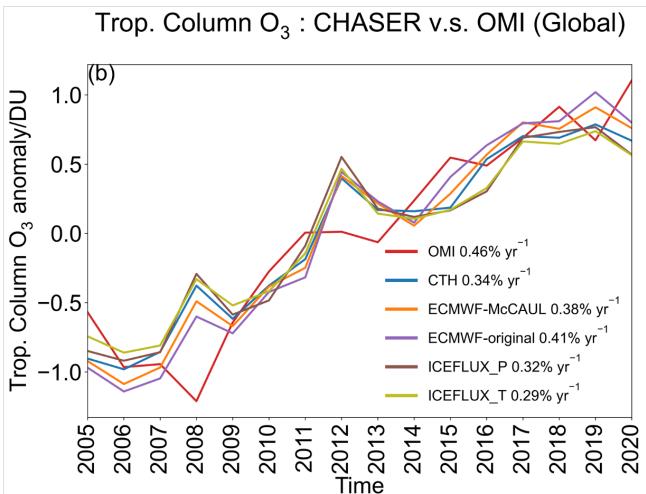


Figure S2: The comparisons between the annual global mean OMI/MLS tropospheric column O₃ anomaly and the CHASER annual global mean tropospheric column O₃ anomaly from 2005 to 2020. All the modelled trends displayed are simulated with 10 interannually varying LNO_x emissions (The first set of experiments).