Supplement of Atmos. Chem. Phys., 20, 8405–8419, 2020
https://doi.org/10.5194/acp-20-8405-2020-supplement
© Author(s) 2020. This work is distributed under the Creative Commons Attribution 4.0 License.

Supplement of

Strong sensitivity of the isotopic composition of methane to the plausible range of tropospheric chlorine

Sarah A. Strode et al.

Correspondence to: Sarah A. Strode (sarah.a.strode@nasa.gov)

The copyright of individual parts of the supplement might differ from the CC BY 4.0 License.
Fig. S1: The July 2004 surface concentration of CH$_4$ (left) and $\delta^{13}$C-CH$_4$ (right) from biomass burning (a,b), wetlands (c,d), and geologic+coal sources (e,f) from the GEOS tagged CH$_4$ tracers.
Fig. S2: The January 2004 surface concentration of CH$_4$ (left) and $\delta^{13}$C-CH$_4$ (right) from biomass burning (a,b), wetlands (c,d), and geologic+coal sources (e,f) from the GEOS tagged CH$_4$ tracers.
Fig. S3: Surface concentrations of Cl (molec cm$^{-3}$) as a function of month and latitude for a) SimStd, b) SimGC, c) SimTom, and d) SimMBL.
Fig S4: July a) CH$_4$ loss and b) CH$_4$ loss by Cl only in the SimMBL simulation, as well as the
difference in c) CH$_4$ loss and d) $\delta^{13}$C-CH$_4$ between the SimMBL and SimStd simulations.
Fig. S5: The annual cycle of $\delta^{13}$C-CH$_4$ with the annual mean removed averaged over 2002-2004 for 12 sites. Observations (black circles) are shown with error bars representing the standard error, calculated as the maximum of the pooled standard deviation or the analytical uncertainty,
divided by the square root of the number of years of observations. The simulations are SimStd (red), SimGC (blue), SimTom (cyan), SimMBL (orange), SimWet (green), and SimOHp (purple). The latitude, longitude locations of the sites are ALT: 82.5°N, 62.5°W; BRW: 71.3°N, 156.6°W; MHD: 53.3°N, 9.9°W; NWR: 40.0°N, 105.6°W; AZR: 38.8°N, 27.4°W; TAP: 36.7°N, 126.1°E; WLG: 36.3°S, 100.9°E; MLO: 19.5°N, 155.6°W; KUM: 19.5°N, 154.8°W; ASC: 7.9°S, 14.4°W; SMO: 14.3°S, 170.6°W; CGO: 40.7°S, 144.7°E.