

The Global Methane Budget: 2000-2020

Saunois et al., ESSD, 2024

Detailed Response to Dr Plummer.

We acknowledge Mr Plummer for his comments on the supplementary document and spotting errors in the Table.

Below are the responses (in black) to his comments (in italics, blue). Changes in the text follow each response in bold font.

A very minor comment on what I believe is an error in Table S5. There is a heading for 'CMIP6 (2000-2009) - Hist' and a list of models given below, and then the heading 'CCMI (2000-2009)' but the models listed below the CCMI heading are the same models listed under CMIP6. The numbers are not the same, but should the models listed under CCMI be more in line with what is given in Table S4?

Actually, we did not process CCMI-2022 outputs to calculate CH₄ chemical loss, as we did for OH (Table S4). In Table S5, values are only from CMIP6 simulations. Chemical loss were not mandatory outputs for CCMI-2022 and we did not get enough data to proceed to the calculation.

Though, the caption of Table S5 was incorrect and has been corrected as follows:

“ Methane chemical loss in the troposphere and stratosphere in Tg CH₄ yr⁻¹ on average for the decade 2000-2009 and 2010-2019 as calculated from the model outputs contributing to CMIP6 (Collins et al., 2021) modeling activities. Values are provided for both the historical run (Hist- SSP3-7.0 starting in 2015), and the AMIP experiments. The AMIP experiments use prescribed SSTs and Sea Ice rather than a coupled ocean. »