

P4 L120-121: The percentages of data filtered for CH₄ are given here only; the data amounts filtered for N₂O (17, 15 and 9%; Review Response P7) should also be included.

Review Response P10, relating to comment on P869 L24: The authors have provided the information requested by the reviewer, but this should actually be included in the text (at P10 L327 of the revised manuscript).

Review Response P12, relating to the comment on P874 L16: The sentence regarding isotope measurements (P14 L460-462), even with the newly added reference to Rigby et al. (2012) should not be included in the conclusions of this study – no new information was provided in the paper at all to support the use of isotope measurements. The authors could rather refer to this by concluding that they could only poorly resolve source processes, thus highlighting the limitations of concentration-only measurements, and they may then tentatively suggest the utility of isotope measurements – although no simulations were performed to show that this would help in the present case.

Regarding natural N₂O emissions: It is unclear whether the technique of multiplying Saikawa et al. natural soil emission estimates by the proportion of natural land is valid, even considering the limitation of the Saikawa et al. estimate – because natural N₂O emission can still occur as a ‘baseline’ from agricultural lands ie. Some of the N₂O from these lands is due to fertiliser and thus anthropogenic, and some would occur regardless. Similarly, deposition of N (eg. From NH₃) on natural soils means that not all emissions from natural lands are natural emissions.

The way the authors have dealt with this, ie. To multiply the estimate by the proportion of natural land, is adequate because it is close to impossible to estimate natural and anthropogenic soil emissions more accurately with present information. However the authors should be more careful in highlighting this problem in both their prior, and in their posterior estimates of natural vs. anthropogenic soil emissions.