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Geoscientific Model Development Discussions

Interactive comment on "Silicone v1.0.0: an open-source Python package for inferring missing emissions data for climate change research" *by* Robin D. Lamboll et al.

Robin Lamboll

rlamboll@imperial.ac.uk

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Many thanks for your detailed review. You raise many excellent points, which we will update on shortly. Some comment and explanations:

- Statistics and monotonicity: We only tried measurement techniques that would also ignore nonmonotonic relationships. However the spread of the data is very high, so while it is possible that some relationships might have non-monotonic trends at some times, it's unlikely that we would be confident in finding these. We have investigated by eye all combinations of CO_2 and CH_4 with every other emission for several different years and see no sign of nonmonotonic relation-

ships. My understanding of the Hoeffding Dependence Coefficient is that it's very computationally expensive to run (particularly since I don't see any examples of runtime-optimised code for it in Python), and doing so on so many noisy combinations of emissions and time is essentially p-hacking.

- The use of the Sky scenario opened up analysis of whether the scenario is really Paris-compliant when other types of emission are included. However the answer is somewhat marginal and doing this rigorously would require a much larger amount of space than a simple example warrants (plus the parts of the pipeline not mentioned in this paper), so we will replace it with another scenario.
- The placement and format of the tables is due to the journal submission format - we hope that they would better place it and sort out headings/page splits properly in the published version.

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