

Earth Syst. Sci. Data Discuss., referee comment RC1  
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## Comment on **essd-2021-81**

Anonymous Referee #1

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Referee comment on "High-resolution seasonal and decadal inventory of anthropogenic gas-phase and particle emissions for Argentina" by S. Enrique Puliafito et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-81-RC1>, 2021

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Review of "High resolution seasonal and decadal inventory of anthropic gasphase and particle emissions for Argentina" ESSD-2021-81.

This is an excellent study and deserves to be published. In fact, it has been difficult to find fault with it beyond errors in language that will be caught by Copernicus' copy-editing stage. It is clear this paper builds on work that has been undertaken over several years, resulting in several other papers since at least 2015. The paper under review brings together these works into a comprehensive study covering all sectors and a range of emission species.

The comparison with EDGAR is particularly useful, as EDGAR is widely used but uses a relatively standard method across all countries.

I have a few very minor comments.

Line 148: National Communications are submitted to the UNFCCC, not the IPCC.

Line 633: The authors state that this is 'clearly' a result of EDGAR using a low resolution population map. Can they support this statement with reference to EDGAR publications? I think the more information that the EDGAR team has about how to make improvements, the better.

Line 637: With regard to the possible overestimation of residential emissions in EDGAR, I believe EDGAR estimates these using bioenergy data from IEA. The authors might

consider checking this and adding detail here, since potentially the IEA's bioenergy estimates for Argentina are incorrect, and this has wider consequences.

Line 654: Here emissions in sector 1B1 (fugitive from solid fuel production) are mentioned, but I cannot find any description in the Methods section on how these are estimated. I believe EDGAR uses a constant emission factor per produced tonnes of coal. Do the authors use a different method? Do they have further comments on this? I think EDGAR's fugitive emissions in general are very approximate, and any pointers on how this could be improved would surely be welcomed.

Lines 659ff: With respect to differences in N<sub>2</sub>O emissions, the point is made that this could be inclusion/exclusion of LULUCF N<sub>2</sub>O emissions. Do the authors know whether the EDGAR grids include LULUCF N<sub>2</sub>O emissions? Could a comparison additionally be made to EDGAR non-gridded data, which I believe do allow exclusion of LULUCF emissions?

Finally, some comment on how readily the dataset might be updated in future would be of interest.