Atmos. Chem. Phys. Discuss.,
doi:10.5194/acp-2016-905-RC2, 2017

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Impact of spatial proxies on the representation of bottom-up emission inventories: A satellite-based analysis" *by* Guannan Geng et al.

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Received and published: 5 January 2017

This paper compares several methods for "downscaling" CO2 emissions using different spatial proxies. It compares the proxies by comparison with satellite NO2 column measurements which are regarded as proxies for anthropogenic CO2 concentrations. The paper is clearly in scope for ACP. It is well written with extensive and useful citation of the relevant literature.

I find it to be a very good paper. Its aim is limited, pointing out a sensitivity to the spatial proxies used and making a suggestion about the best choice, at least for China. It achieves this aim well however. Interestingly the choice is similar for the U.S. where the validation dataset is the emission inventory from the VULCAN project.

My only concern for the paper is lack of availability of the various underlying datasets. I'm not sure what the current policy of Copernicus journals is but verification of this analysis plus more general utility requires the community to be able to access the various emission products used in the paper. I believe availability of these datasets should be a precondition for the publication of the article but this is a question for the journal itself.

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