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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Refined estimate of China's CO_2 emissions in spatiotemporal distributions" *by* M.-M. Liu et al.

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Editor's comment:

Your paper has been evaluated by two anonymous reviewers. They gave a set of major and minor comments, and most of the minor comments, including the editorial comments, will be addressed, in your revision, as suggested in your reply. The major criticism, raised by one of both reviewers, was related to the methodologies involved, and the scientific quality. There are some significant assumptions in the methodology used and the authors identify some of these. Also, the reviewer pointed out that the authors are too critical of previous studies.

As handling editor, I strongly support your suggestion (as suggested in both replies)

to address those comments. The scientific quality in the revised version and to address those comments will be critical for accepting the paper in ACP. I look forward in receiving the revision.

Response: Thanks for editor's comments. All the minor comments have already been addressed (see our previous replies to reviewers for more details) in our revised manuscript. As commented by reviewer #1, there are indeed several key assumptions in our methodology. Actually, all of them were described or mentioned in section 2 of our original manuscript. We summarized these assumptions below for clarification.

Uncertainty analysis of China's total CO2 emissions are based on the published references (Please see the last paragraph in sect. 2.1 for more details), which include: (1) A triangular distribution function is assumed for the activity data; and (2) distribution function curves for emission factors are assumed based on the literatures shown in Table S1.

Spatial distributions of emissions relating to human activities (e.g., transport energy consumption (TEC) sector and other energy consumption (OEC) sector) are assumed strongly correlated with population density. The spatial distributions of small industrial emissions (except emissions from large point emitting sources) are assumed to be strongly correlated with industrial GDP density. Please see paragraph 2 of sect. 2.3 and Table S2 for more details.

Monthly variations of emissions from various sectors are assumed to be consisted with each sector's energy consumption and/or industrial productions (or industrial added values). Please see section 2.2 for more details.

For another major criticism that this study is too critical of previous studies, we have already revised the contents according to reviewer #1's suggestions. Please see our previous reply to reviewer #1 and our revised manuscript for more details.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 17451, 2013.