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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Anthropogenic and natural controls on atmospheric δ^{13}C-CO_2 variations in the Yangtze River Delta: Insights from a carbon isotope modeling framework" *by* Cheng Hu et al.

Anonymous Referee #1

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This paper describes a study of CO2 emissions in the megacity region of the Yangtze River Delta of China, which include several major cities in eastern China. The novel contribution of this study is the WRF-STILT modeling of the emissions making extensive use of the stable isotopic composition of carbon in CO2 (delta13C-CO2). The simulation agrees well with the CO2 observations. The modeling of delta13C-CO2 allows investigation of the contributions of various anthropogenic and biogenic sources. The topic of this study falls well within the scope of Atmospheric Chemistry and Physics. Therefore, this paper should be published after minor revision.

My concerns include the need for clarification and further discussion of several points and the need for quantification of uncertainties in calculations resulting from the modeling runs. Particular instances of these are given in the specific comments in the attached supplement.

Please also note the supplement to this comment:
https://acp.copernicus.org/preprints/acp-2020-627/acp-2020-627-RC1-supplement.pdf

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