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Geoscientific Model Development Discussions

Interactive comment on "Using reactive transport codes to provide mechanistic biogeochemistry representations in global land surface models: CLM-PFLOTRAN 1.0" *by* G. Tang et al.

Anonymous Referee #2

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This is a technical paper that deals with numerical issues arising upon coupling of reactive transport models to global land surface models.

Upon accepting this review, I assumed that the paper would focus on biogeochemical mechanisms, but this is not at all the case. The title is quite misleading, as this manuscript is not about codes that represent biogeochemistry in global land surface models in more mechanistic ways, but rather about possible numerical issues that arise during this coupling and how to solve them. Therefore, the intended audience is unclear. Yet, the manuscript will not be of general use for researchers that are interested in the types of biogeochemical mechanisms to be represented in LSMs. Because of

that, I am not sure whether this paper fits the scope of the journal.

My main concern is that, based on the current manuscript it is not possible to recreate the analyses, as I do not fully understand how this coupling has really been implemented, nor the specifics of the CLM-PFLOTRAN simulation. Also, it is not clear how the results have to be used – should one implement all these procedures (clipping, scaling, log) and select one of them based on the parameter settings? Finally, have the authors thought about higher order backward schemes – do they have the same defects as the backward euler method?

Interactive comment on Geosci. Model Dev. Discuss., 8, 10627, 2015.