Geoscientific
Model Development
Discussions

Interactive comment on "ICON-ART 2.1 – A flexible tracer framework and its application for composition studies in numerical weather forecasting and climate simulations" *by* Jennifer Schröter et al.

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Received and published: 18 July 2018

Dear Dr. Folberth,
Dear referees,

Thank you for handling our submission. Please find our point-by-point response in the supplement. A version of the revised manuscript in a clean version and with the tracked changes will follow.

The main changes and improvements include:

- We included in sections 5.2 and 5.3 a more quantitative analysis.

- Based on the comments by referee 1, we provide a more precise discussion of the differences between the Linoz and the Chapman cycle simulations in section 5.2. Instead of including a scaling factor of 10 to make small changes visible, we decided to plot a zero line separation (gain/loss, also highlighting areas of low temperatures). In addition, we discuss the influence of the relaxation term of LINOZ in more detail.

- We extended the discussion of a timeseries analysis for section 5.3 to emphasise (and quantify) the different aspects of trends and annual variability in the control and feedback simulations of ICON-ART.

- In addition, we compare to TOMS ozone column data as well.

- In section 5.3 onward, we limit our analysis to the period 1990-2009, as suggested by referee 1. The results of the longer simulations can now be found in the appendix

- In general, we revised definitions to be more precise and added missing units.

- We extended the appendix to provide a table of acronyms for convenience.

- Referee 2 suggested that we combine (old) Figure 8&9 as well 10&11. Due to the layout of GMD we decided to stay with separate figures for a clear arrangement.

- The general intention of this paper is to illustrate the status of our ICON-ART development with a strong focus on current technical improvements. We believe,

like referee 2, that the level of technical detail is appropriate for a GMD publication and that the technical aspect is well supported by our use cases.

We hope that we could address the referees concerns adequately and are looking forward to the finalisation of the review process. With kind regards, also on the behalf of all co-authors,

Jennifer Schröter

Please also note the supplement to this comment:
https://www.geosci-model-dev-discuss.net/gmd-2017-286/gmd-2017-286-AC1-supplement.pdf