

## Response to final comments from Editor

Authors appreciate editor's comments and suggestions regarding code and data availability. The manuscript has been revised to accommodate the editor's comments.

### General Comments:

**Thanks you for the revision. I am happy to accept them as is. We had a further look at the GMD data policy. Here are some comments, which I like you to have a close look at and revise the data handling accordingly.**

**COMMENT 1) Github URLs. Github is an excellent development platform, but it lacks the features required of an archive. GitHub themselves tell authors to use Zenodo for this purpose. The authors should follow the procedure detailed there to archive the exact version of the software used to create the results presented: <https://guides.github.com/activities/citable-code/>. The resulting Zenodo repositories present the correct bibliography entries to use.**

**RESPONSE)** Thanks, based on your request, a Zenodo repository was created for C-TRAIL v1.0 with specific DOI. This was mentioned in the section of Code and Data availability:

“The C-TRAIL version 1.0 is derived from the CMAQ v5.2 model. The CMAQ model is an open-source model that can be accessed via Zenodo (<https://doi.org/10.5281/zenodo.1167892>). The documentation and tutorials on CMAQ are available on the US EPA modeling website <https://www.cmascenter.org/> (last access: June 2020). The C-TRAIL v1.0 model source code and pre/post-processing scripts are available via Zenodo (<https://doi.org/10.5281/zenodo.3885782>).”

**COMMENT 2) No data identified. The datasets used to conduct the evaluation experiments presented must be cited from the code and data availability section with enough precision to allow a reader to reproduce the work in the manuscript.**

**RESPONSE)** We mentioned about data that was used for evaluations in the section of code and data availability:

“The flight observations used for evaluation of the model were downloaded from the KORUS-AQ website <https://www-air.larc.nasa.gov/missions/korus-aq/> (last access: June 2020), DC8 Aircraft observations for CO concentrations comparison and Ozonsonde data for wind speed/direction evaluation. For surface concentration evaluations, we used surface observational data from the Air Quality Monitoring Station (AQMS) network operated by the National Institute of Environmental Research (NIER), which is available for the public on <https://www.airkorea.or.kr/web> (last access: June 2020).”

**COMMENT 3) No configuration, run, or data processing scripts. The configuration files, run scripts and any data processing or analysis scripts used to produce the results presented in the manuscript need to be publicly and persistently archived, and cited from the code and data availability section. As a guide, every file the user would need to reproduce the manuscript should accessible.**

**RESPONSE)** Thanks for your comment. The data processing and plotting scripts are also added to the C-TRAIL's Zenodo repository. For clustering and trajectory plots, we used an Open-air package in the R programming language. The library set up and run scripts for C-TRAIL are completely similar to the CMAQ model, and the process to configure the model and run is mentioned in README of the repository. I have to add that the configurations for the WRF run and Emission Inventory are also mentioned in the

manuscript, which can be used to reproduce the data as input for the CMAQ model. Once all the required input data for CMAQ is prepared, running C-TRAIL would be the same as running the CMAQ model.