

Response to Chief Editor (Astrid Kerkweg):

Dear authors,

in my role as Executive editor of GMD, I would like to bring to your attention our Editorial version 1.2:

<https://www.geosci-model-dev.net/12/2215/2019/>

This highlights some requirements of papers published in GMD, which is also available on the GMD website in the 'Manuscript Types' section:

http://www.geoscientific-model-development.net/submission/manuscript_types.html

General Reply: We are grateful for the detailed information and suggestions and hope that the manuscript does now fulfill all criteria.

In particular, please note that for your paper, the following requirements have not been met in the Discussions paper:

- "The main paper must give the model name and version number (or other unique identifier) in the title."
- "If the model development relates to a single model then the model name and the version number must be included in the title of the paper. If the main intention of an article is to make a general (i.e. model independent) statement about the usefulness of new development, but the usefulness is shown with the help of one specific model, the model name and version number must be stated in the title. The title could have a form such as, "Title outlining amazing generic advance: a case study with Model XXX (version Y)"."

As you are using EURAD-IM to show the performance of the ensemble, please add something like "a case study using EURAD-IM version x.y" to the title of your manuscript.

Reply1: We thank the chief editor for pointing towards the specific requirement. Indeed, this article presents a general statement about the usefulness of new development, but the usefulness is shown with the help of one specific model. We added the suggested information to the title:

" a case study for biogenic emissions from EURAD-IM version 5 "

Additionally, please note, that as you are using EURAD-IM to produce the results shown in your article, the information how to access the EURAD-IM code is also required, including the permanent archiving of the exact EURAD-IM version the results of this articles have been created with.

Reply2: To be specific, the EURAD-IM model itself is not required. The developments presented in this article does only require the output of an chemical transport model, which is the EURAD-IM model for the presented results. We see that the formulation of this aspect was misleading in the article and reformulated the related sentences accordingly (Sect. 3, 1.305-307 and 1.314-315, new count):

" The KL ensemble generation algorithm was implemented in a way that it uses precalculated output from the EURAD-IM (EUROpean Air pollution Dispersion - Inverse Model) chemical data assimilation system. Note that the algorithm is independent of the forecast model, which can be replaced by any other CTM. [...] In this study, the EURAD-IM system provides forecasts of sensitivities to various model arguments, which are used for covariance construction in the KL algorithm. "

Additionally, we made the output of EURAD-IM which was used for the calculation of the results available. The code availability statement was extended accordingly to a code and data availability

statement including:

" The data used as input for the production of the results and the output of the algorithm are available at <https://doi.org/10.5281/zenodo.4772909> (Vogel and Elbern, 2021c). "