

Interactive comment on “A N-dimensional Fortran Interpolation Program (NterGeo.v2020a) for Geophysics Sciences – Application to a back-trajectory program (BACKPLUMES.v2020r1) using CHIMERE or WRF outputs” by Bertrand Bessagnet et al.

Anonymous Referee #1

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This manuscript presents an useful tool to support the scientific analysis of atmospheric model outputs. This tool allows the estimation of back trajectories of plumes and it is directly linked to commonly-used regional atmospheric and chemistry-transport models, such as WRF or CHIMERE. The fact that the tool is directly linked to these models allows a total consistence between forward and backward estimates, as the wind field and grid are the same in both cases. The methodology is well described, with a clear and well-structured overall presentation. The code is available, through a link provided

in the manuscript.

I strongly recommend the publication of this manuscript in GMD. Here some minor comments that I consider that could improve the manuscript (but not necessary for publication).

1. In page 36, the authors mention that BACKPLUMES is different than other back-trajectories models, such as Hysplit or Flexpart. Could the authors explain more the differences with the before-mentioned models? As the authors mention more processes than atmospheric motions, such as chemistry and deposition processes, can they be more precise, indicating which models consider those processes (further than only atmospheric motions)?
2. In the comparison with Hysplit, could the authors indicate if their methodology consider the same meteorological parameters?
3. It would be appreciated to include a comment (or to highlight if already included; apparently it is not included) about the target pollutants, if used for chemistry-transport models; if back trajectories are mainly estimated considering atmospheric motions this code can be used mainly for non-reactive pollutants.
4. The authors mention through the paper “particles”. Please clarify this more (or if it is a general pollutant, not necessarily a particle)
5. Could it be possible (not necessary for publication) to have an example of the comparison with Hysplit and Python for the WRF and CHIMERE applications? It could be useful for potential users.

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