

Interactive comment on “The Lagrangian particle dispersion model FLEXPART-WRF version 3.0” by J. Brioude et al.

Anonymous Referee #2

Received and published: 3 September 2013

This paper describes a new version of FLEXPART-WRF, which contains significant scientific and technical updates and clearly deserves publication in GMD. Given the updates to usability and the distribution of this code as well as the more clear documentation of the FLEXPART-WRF model than has previously been available in the literature, this is exactly the type of paper that is intended for GMD. In general, I echo the first reviewer’s comments, so they are not repeated here.

Major comments:

- It would be helpful to have at least one inter-comparison between FLEXPART-ECMWF/GFS and FLEXPART-WRF included in the paper, potentially including a comparison with the prior version of FLEXPART-WRF.

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- P3622 L15 and section 2.5 – the impact of using different PBL and turbulence output from WRF in FLEXPART could be expanded. As it stands, the options to use boundary layer and turbulence output from WRF have been implemented, but they are not recommended for use. While this may be for future scientific studies, it would be helpful to have a figure to demonstrate the differences between these options, for example for emissions from a point source in the boundary layer. It would also be helpful to compare this with FLEXPART-ECMWF/GFS.

- Table 2 in its current format is unclear. Please clarify what portions are for OPENMP vs MPI, or both. Does the “number of threads” heading apply to the entire column, or is the bottom half of the table not for threads, but for nodes instead?

- Both the text and references should be checked carefully for English and typos. For example, in the first reference CALNEX should be capitalized. The authors should check the document for these types of errors that occur frequently when using LaTeX.

Minor comments:

- P 3620, first sentence – the references are not appropriate for this statement, especially since the following statements regarding NILU, INTE, and ARSC do not include similar references.

- Page 3620, last sentence of first paragraph: the “full palette” should be changed to something like the “full suite”

- P3620 L20, This paragraph is strangely placed as the conclusion to the introduction.

- P3621 L18, add a statement that explicitly says the user should be confident in the WRF forecast by for example testing/comparing the forecast to observational data to be more confident in the FLEXPART-WRF results.

- P635 L21, is it the implementation or the scheme itself that is too simplified?

- P3636 L3, replace “aspect” with “issue”

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- P3636 L9, replace “a better implemented” with “and implemented a better”
- P3636 L11, it would make more sense to say “new scheme” instead of “new implementation” here
- P3636 L15, what does “somewhat differently” mean in this context? A more clear statement should be used.
- P3638 L14, Use a more complete thought for this first sentence, for example: Three choices are given to the user for model output.
- P3642 L2: replace “some of them would include” with a more clear statement, for example: “Some future developments and investigations could include”

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