Geoscientific

Model Development

Discussions

[GMDD]

Interactive

comment

Interactive comment on "Prioritising the sources of pollution in European cities: do air quality modelling applications provide consistent responses?" *by* Bart Degraeuwe et al.

Anonymous Referee #1

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The paper address relevant scientific modelling questions regarding the application and feasibility o fair quality models to support air quality plans, which is quite new and advanced research. The methodology is appropriate and well-described. Nevertheless, there are some major (and minor) critical points that should be addressed before publication. They are listed below.

Major changes Line 70-77: please comment about the different baseline year for the emission and meteorology data and its implication on the results. Authors could highlight here (what is said at the end of the paper) that these differences in input data are interesting to the analysis of results since this is the usual way to define air qual-

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[Discussion paper]

ity plans, etc. . . Nevertheless, these differences should be analysed in detail in order to understand their role in the SHERPA results. At least, authors should give some information regarding the validation (with observational data) of the 2 different models application (EMEP and CHIMERE). It is different if we are talking about 2 models with good performance or 2 models with completely different skills. . . Line 249: Again, regarding the sentence "Probably for these areas the differences in terms of meteorology, emissions, and their impact on concentrations through the air quality models, is higher than in other areas." This should be explored and analysed to better support the interpretations and conclusions and shouldn't be only an hypothesis to mention. . .

Minor changes Abstract: please add more details in the last sentence ("But there are also cases where results are contradictory". it is not mention which was the pollutant studied: PM2.5 Line 18: all instead of al Line 19: Please review the sentence: "FAIRMODE (the Forum for air quality modelling in Europe) i.e. provides tools to assess the. . ." Line 82: please explain why PM2.5 is the focus, and why only this one Line 145: please use subscript on the compound's chemical formulas Line 182: "chimere.rank" Line 184: what do the author mean with "for the different types of considered aggregations (area, sector, area-sector, ...)"? It is not obvious Line 185: Before starting to analyse the results for specific cities, the authors should identify and present which were the 4 cities selected (and their different behaviours associated) Line 194/209/. . .: Tables caption should be on the top of the table

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