Geoscientific

Model Development

Discussions

[GMDD]

Interactive

comment

Interactive comment on "Ozone air quality simulations with WRF-Chem (v3.5.1) over Europe: Model evaluation and chemical mechanism comparison" *by* K. A. Mar et al.

Anonymous Referee #1

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This manuscript presents the application of the WRF-Chem model over Europe with particular focus on ground level ozone concentrations. Model is evaluated for two different chemical mechanisms (MOZART-4 and RADM2) for the whole year 2007.

The article is well written and the methodology is clearly and very deeply described. The modelling performance evaluation is well treated by the authors as well as an interesting characterization of the chemical mechanism differences is presented too. Moreover, the consideration on poorly analyzed aspects, such as the photochemistry production rates, makes this study an important element of the common effort to evaluate more deeply the quality of the chemistry-transport models and the chemical mechanisms themselves.

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[Discussion paper]

For these reasons, I consider that such work should be published in GMD, but only after minor revisions are addressed:

Page 3 line 54-55: I disagree with this statement. Many European WRF-Chem modelling evaluation studies have been published in the last few years.

Page 10 line 293-295: Please, in order to prove that differences between the two meteorological simulations are negligible provide statistical indexes or a comparison figure in the supplementary material.

Page 15 line 478: to be in line with the NOx (NO2 and NO) treatment in MOZART simulation, I suggest to briefly explore NO concentrations in RADM2

Figure 1: I suggest to represent temperature using the International System unit (K) here and everywhere else in the text.

Interactive comment on Geosci. Model Dev. Discuss., doi:10.5194/gmd-2016-131, 2016.