

Interactive comment on “The impact of MM5 and WRF meteorology over complex terrain on CHIMERE model calculations” by A. de Meij et al.

Anonymous Referee #2

Received and published: 10 March 2009

General comments.

The subject of this paper is very interesting. Often, in fact too often, developers and users of CTM's take the meteorological input data (and often also the emission input data) as given, without a carefull analysis. This paper adresses specifically the use of the MM5 and the WRF meteorological models as input to the CTM CHIMERE. First the meteorological models as such are evaluated against observations, followed by the analysis of the impact that these two meteorological drivers have on the calculated concentrations of O₃, NO₂ and PM. The paper contains many relevant details and analysis, and forms a useful contribution in the growing subject of the implications of the use of NWP models as input to CTM's

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specific comments

The paper addresses mainly the impact of the PBL of MM5 and WRF on the calculated concentrations. In paragraph 2.2.3.1 it is stated that by using the PBL scheme, the explicit vertical diffusion is de-activated. The impression given is that in fact the lowest layer in the model is the well-mixed PBL, and that no vertical layers are used within the PBL. The question arises whether this is in fact the case, or that a surface layer is still used. The fact that the calculated NO₂-concentrations are higher than the observations gives the impression that a surface layer is used, and in fact with a too low value of K_z. The question arises whether the MM5 and WRF deliver different values of K_z-profiles. In relation to this, the question arises whether the models deliver different values of u*. This would have an impact on especially the dry depositions, and might explain partly the differences in the calculated concentrations

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 2319, 2009.

ACPD

9, S714–S715, 2009

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