Interactive comment on "Online coupled regional meteorology-chemistry models in Europe: current status and prospects" by A. Baklanov et al.

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Review of the manuscript entitled "Online coupled regional meteorology-chemistry models in Europe: current status and prospects" by A. Baklanov et al. submitted for possible publication in the ACP

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Comments: The subject is appropriate to ACP. This manuscript comprehensively summarizes the current status of online coupled regional meteorology-chemistry models in Europe and can definitely make a valuable contribution and important addition to the literature. Therefore I recommend the acceptance for publication of this manuscript in ACP after some minor modification. Several comments for improving the information content and presentation of the paper are listed as follows.

Thank you for reviewing our manuscript and providing positive feedbacks.
We have incorporated all your comments and suggestions in the revised manuscript. Please see below our point-by-point replies to the specific comments. Please find all our replies in red colour, following your remarks, which we copied and kept in black.

1. P12552, line 16 and P12642, lines 10-26: Regarding the two-way coupled WRFCMAQ model system, the latest version of two-way coupled WRF-CMAQ model has included aerosol indirect effect (see the publication: Shaocai Yu, Rohit Mathur, Jonathan Pleim, David Wong, Annmarie G. Carlton, Shawn Roselle, and S.T. Rao. 2011. Simulation of the indirect radiative forcing of climate due to aerosols by the two-way coupled WRF-CMAQ over the eastern United States. Chapter 96, Steyn, Douw G.; Trini Castelli, Silvia (Eds.), Air Pollution Modeling and its Applications XXI. Springer Netherlands, Netherlands, C(96):579-583 (2011)). Please include this update in your references and text.

This reference has been added in the references list and main text in P12642, lines 10-26 has been modified to include aerosol indirect effects.

2. P12560 to P12561: Regarding the Aerosol dynamics and thermodynamics (4.3.1. Bulk approach, 4.3.2. Modal approach and 4.3.3 Sectional (bin) approach), as summarized by Yu et al. (2008) (Yu, Shaocai, Rohit Mathur, Kenneth Schere, Daiwen Kang, Jonathan Pleim, Jeffrey Young, Daniel Tong, Stuart A. McKeen, and S.T. Rao, 2008 Evaluation of real-time PM2.5 forecasts and process analysis for PM2.5 formation over the eastern U.S. using the Eta-CMAQ forecast model during the 2004 ICARTT Study. Journal of Geophysical Research, 113, D06204, doi:10.1029/2007JD009226), the size distribution of aerosols in tropospheric air quality models can be represented by the sectional approach, the moment approach, and the modal approach. Regarding the moment approach, you can find the related information in the publication:
Yu, Shaocai, P.S. Kasibhatla D. L. Wright, S.E. Schwartz, R. McGraw and A. Deng. 2003. Momentbased Simulation of the Influence of Microphysical Properties of Sulfate Aerosols in the Eastern United States: model description, evaluation and regional analysis. Journal of Geophysical

Research, 108, No. D12, 4353, doi: 10.1029/2002JD002890, 2003. Since you are writing a review paper about this, it will be better if you can include the moment approach too in your discussion.
These points regarding the moment approach have been incorporated into section 4.3.1 of the revised manuscript along with the relevant reference.