

Interactive comment on “Evaluation of lateral boundary conditions in a regional chemical transport model” by E. Andersson et al.

Anonymous Referee #2

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General Comments

This study, as presented, has fairly narrow applicability. The finding that lateral boundary conditions of a regional model play a significant role for long-lived pollutants is obvious. That a global model is used for the lateral chemical boundary conditions of a regional model is nothing new. The analysis of EMEP-based boundary conditions for Swedish MATCH is only useful for those using Swedish MATCH, and potentially for other model users with a similar European domain. Can the authors think of a way to reframe this study to make it of more broader interest? One thing that might be interesting is to add evaluation of another global model for use as LBCs for Europe (e.g., MOZART-4/GEOS-5 from NCAR).

Specific Comments

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In the discussion of underestimation of surface CO concentrations, it is recommended to reference Stein et al. 2014. (<http://www.atmos-chem-phys.net/14/9295/2014/acp-14-9295-2014.pdf>).

p. 5770, starting at line 26. Please add a more detailed description of where the fixed lateral boundary conditions for MATCH (later referred to as “ORIG”) come from. What are they based on?

Figures 2 & 4. Include in these plots what the “ORIG” lateral boundary conditions look like.

Section 2.4. The authors should justify their choice of a very small subset of ground-based stations. Why not use all of the EMEP network? Or all rural background stations in the Airbase network?

Interactive comment on Geosci. Model Dev. Discuss., 8, 5763, 2015.

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