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Geoscientific Model Development Discussions
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Interactive comment on "Spatiotemporal evaluation of EMEP4UK-WRF v4.3 atmospheric chemistry transport simulations of health-related metrics for NO_2, O_3, PM_{10} and $PM_{2.5}$ for 2001–2010" *by* C. Lin et al.

Anonymous Referee #1

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1) There are indeed many statistics some of which are 'quite exotic' that can be used to assess model performance so one could argue that RMSE should not be included. However, in all articles quoted RMSE is included and this is not just because the authors had a big appetite for statistics but because this statistic 'completes the picture' when assessing model performance in conjunction with the bias and correlation. Why not extend your analysis with the RMSE?

2) There was indeed a typo in my comment: this should off course have been 'UNcertainty'. However the response the authors provide to the comment I gave concerning

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model vs observation uncertainty rather me in my conviction that they did not fully understand the concept proposed by Thunis et al. Let me try to explain. The concept of a Model Quality Objective (MQO) presented by Thunis et al. is that statistics used to describe model performance (bias, R or RMSE, ...) in themselves do not allow an actual assessment of how good the model is performing. Thunis et al. therefore propose to use the observation uncertainty as a 'yard stick' by which model uncertainty can be assessed. This e.a. implies that if model uncertainty is smaller than observation uncertainty there is no statistical basis for trying to improve the model in the sense that you'll not be able to discern the improvement based on a comparison with measured values. This also means that if measurement uncertainty increases this does not 'degrade the values' but rather result in that 'poorer' model performance may still be acceptable.

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