

***Interactive comment on “Evaluation of dust and trace metal estimates from the Community Multiscale Air Quality (CMAQ) model version 5.0” by K. W. Appel et al.***

**Anonymous Referee #1**

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This manuscript documents the potential/ability of the CMAQ modelling system version 5.0 (CMAQv5.0) to reproduce the observed variability of daily surface based concentrations of dust and trace metals in the continental United States. Model performance characteristics are presented and possible reasons for discrepancies between modelled and observed concentrations are discussed to some extent. Overall, the manuscript is well written and provides useful information. The modelling approach has been thought through and is sound. I am pleased to recommend the manuscript for publication in GMD after the authors clarify a few minor points, which are detailed in the following. Counting all the lines and referring to the page number:

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P1863, L15-16: Please explain how the WRF model was run. Was it run in segments of 1 month with 10-day spin up?

P1864, L5: It is mentioned on P1863, L21 that the emission inventory and ancillary files were based on the 2005 NEI emission modelling platform and here that area source emissions were based on estimates from the 2002 version of the NEI. Please explain.

P1864, L25: “PM2.4 and/or PM10”?

P1867, L14-16: Please explain how this has been done or give a reference.

P1868, L5: Please change “please refer to” to “the reader is referred to”.

P1870, L27: The XRF analysis is presumably not done at the sites. Please change “at the IMPROVE sites” to “for the IMPROVE sites”.

P1877, L10: Is there satellite data to show that high concentrations were observed?

P1877, L23: What about TRMM data?

P1888, Table 1: Please indicate the unit for the transportable fraction (%?).

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Interactive comment on Geosci. Model Dev. Discuss., 6, 1859, 2013.

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