

## ***Interactive comment on “Twelve-month, 12 km resolution North American WRF-Chem v3.4 air quality simulation: performance evaluation” by C. W. Tessum et al.***

**C. W. Tessum et al.**

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**Comment:** The manuscript is well written and exhaustive, and will provide an excellent reference for future studies using WRF-Chem at 12 km resolution.

**Response:** We thank the reviewer for this comment.

**Comment:** I do not have any major comment on the manuscript and I think that it could be published as is.

**Response:** We thank the reviewer for this comment.

**Comment:** [I] agree with reviewer number 1 that seasonal statistics are more useful

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than annual statistics, but I do find annual statistics interesting to get a first idea of the model performances.

**Response:** We agree that both sets of statistics are useful.

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**Comment:** I suggest to add some maps of the different species making up for PM2.5 to the main text.

**Response:** As mentioned above, we have added the figures for PM2.5 subspecies to the main text.

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**Comment:** Some species are more sensitive to emission errors, other to scavenging efficiency, others result from chemistry, so comparing these measurements can give an idea of what is causing the bias.

**Response:** We agree that these comparisons are useful, and we have tried to suggest possible reasons for the model errors we observe wherever possible.

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Interactive comment on Geosci. Model Dev. Discuss., 7, 8433, 2014.

**GMDD**

7, C3415–C3416, 2015

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C3416

