

# ***Interactive comment on “Influence of anthropogenic emissions and boundary conditions on multi-model simulations of major air pollutants over Europe and North America in the framework of AQMEII3” by Ulas Im et al.***

**Ulas Im et al.**

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We would like to thank the reviewer for the positive feedback. Below, we reply to the comments from the reviewer:

Comment 1: Section 3.1: Further discussions are desirable describing (and attributing) the model biases in terms of setup, errors in model meteorology, and processes included /excluded in different simulations. Response: We have now included more detailed model descriptions regarding the chemistry and aerosol modules in the Mate-

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rials and Methods section (Lines 152-170), along with an updated and extended Table 1 providing references to chemical mechanisms used in the models. In addition, we have also provided more discussion on possible model biases in section 3.1 (Lines 280-292), including some discussion on the meteorological biases. However, this paper does not aim to make a full evaluation and error attribution of the models. It does however build on Solazzo et al. (2017) in the same special issue that makes a deep evaluation of the models.

Comment: Page 10, l. 393-395: Why does SO<sub>2</sub> enhancement in case of reduced domestic emissions in North America are pronounced in a small belt over Europe? Is it possible to substantiate the statements with model simulated OH fields? Response: We thank the reviewer for the careful review and we have identified a problem during the plotting. We have now corrected this plot. However, there is still a slight increase of SO<sub>2</sub> over the Alps that is simulated by the majority of the models. The AQMEII database unfortunately does not include OH fields so we cannot further evaluate this increase in this paper.

Comment: Page 4, l.162 – “where embedded” to “were embedded” Response: Corrected (Line 184).

Comment: Page 7, l.276: “SO<sub>2</sub>: : .by 35% 5”. Pl. check this sentence. Response: Corrected (Line 305).

Comment: Page 7, l.279 – “effect” to “affects” Response: Corrected (Line 308).

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