

Response to Reviews of Paper:

The role of long-range transport and domestic emissions in determining atmospheric secondary inorganic particle concentrations across the UK, by Vieno et al.

Editor Comment:

After your careful revision of the original manuscript, and based on the reviewers' comments and your responses, I'll be pleased to accept this paper for ACP publication, pending a minor revision requested by the reviewer. Specifically, the inherent limits of your study need to be stated in the abstract and conclusion. I look forward to receiving your revised manuscript.

Response:

We now include the following statement in the Abstract:

“Although gas/particle partitioning in the EMEP4 UK model used a bulk approach, which may lead to uncertainties in simulated secondary inorganic aerosol, the EMEP4UK model simulations in this work were able to accurately represent both the long-term decadal surface concentrations of particle sulphate and nitrate and an episode in early 2003 of substantially elevated nitrate measured across the UK by the AGANet network.”

We also add a statement in the conclusions:

“Whilst it has been documented that the bulk gas/particle partitioning approach used in these simulations (EQSAM formulation) may lead to uncertainties in simulated secondary inorganic aerosol, the EMEP4UK model was able to accurately represent both the long-term decadal (2001-2010) surface concentrations of particulate matter (PM) and specific episodes of elevated PM NO₃⁻ in 2003.”

Regards

Massimo Vieno