

Interactive comment on “A science-based use of ensembles of opportunities for assessment and scenario study: a re-analysis of HTAP-1 ensemble” by E. Solazzo and S. Galmarini

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The paper deals with the problem of application of multi-model ensembles for air quality problems basing on the results of Hemisphere Transport of Air Pollution (HTAP) project. The question raised in the paper concerns a quite important issue on the applicability and reliability of the results based on multi-model ensemble analysis and the conclusions drawn from such an analysis. The authors have proposed to include screening methodology into ensemble practise, based on the techniques used for the reduction of multi-model ensemble. This seems to be reasonable if one has to deal with model results only. Deeper approach could be based on more detailed

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characteristics of the models, but this is strictly related to model validation as one should get to know weak and strong points of the models. The choice of the ensemble presented by Fiore et al (2009) is interesting as it was originally done for the sensitivity analysis of emission reduction options. In this respect the authors have shown that the emission can change essentially for various ensemble sets of model's selected, which indicates that the sensitivity analysis prepared by using multi-model ensembles should be performed very carefully. In consequence this shows that there is still a problem of defining good practices in treating multi-model ensembles (which to a certain degree is due to the lack of robust theory of multi-model systems). Hence the paper can be treated as a vote towards further research in this direction. The paper meets requirements for including it into ACP with some minor corrections included into specific comments (see attached file).

Please also note the supplement to this comment:

<http://www.atmos-chem-phys-discuss.net/14/C10520/2014/acpd-14-C10520-2014-supplement.pdf>

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