Atmos. Chem. Phys. Discuss., 14, C4101–C4102, 2014
www.atmos-chem-phys-discuss.net/14/C4101/2014/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "De praeceptis ferendis: good practice in multi-model ensembles" *by* I. Kioutsioukis and S. Galmarini

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Received and published: 25 June 2014

The paper provides an exhaustive analysis of the multi-model ensembling in air quality problems, using the data from AQMEII exercises. The authors give clear theoretical introduction based on various error decomposition, and in the following sections compare the predictive skill of three ensemble products with well-defined mathematical properties, namely: - the arithmetic mean of the entire ensemble, - the arithmetic mean of an ensemble subset, linked to the error decompositions, - the weighted mean of the entire ensemble, linked to the analytical optimization. For the selection of ensemble subsets the authors consider several clustering methods. In the analysis different indices and skills are used – the choice seems to be sufficient for the

purpose, however – to some extent – this is a question of taste (but “de gustibus non est disputandum”). The analysis is based on AQMEII dataset, which is an appropriate and representative for this purpose. The authors raised the important issues of ensemble training and predictability – this part seems to be particularly valuable. Of course drawing any final conclusions from the analysis relying on large but one dataset is uncertain, nevertheless some reasonable hints have been formulated. The paper is a step forward towards better understanding of how to build good ensembles. Specific and technical comments are included in supplement file.

Please also note the supplement to this comment:
http://www.atmos-chem-phys-discuss.net/14/C4101/2014/acpd-14-C4101-2014-supplement.pdf

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Interactive comment on Atmos. Chem. Phys. Discuss., 14, 15803, 2014.