

***Interactive comment on “Construction of non-diagonal background error covariance matrices for global chemical data assimilation” by K. Singh et al.***

**K. Singh et al.**

sandu@cs.vt.edu

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We are thankful for the constructive comments made by reviewers. They have helped to improve the manuscript.

We hope that the revised version responds to all points they have raised. This version is attached as a supplement to the response to the second review.

1. The suggested additional references have been added and commented upon.
2. The nature of approximations (that apply to the present paper) is discussed in conclusions.

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3. A numerical comparison with other methods has not been included, but may be the focus of future research.

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Interactive comment on Geosci. Model Dev. Discuss., 3, 1783, 2010.