

## ***Interactive comment on “3D-Var versus Optimal Interpolation for Aerosol Assimilation: a Case Study over the Contiguous United States” by Youhua Tang et al.***

### **Anonymous Referee #1**

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The authors discuss the differences between two assimilation systems based on GSI and OI using the same model and the same set of observations. However, the comparison may be unfair if the error statistics used in the two systems are different by an appreciable margin. It is not entirely clear from the document if the same error statistics is used, or how they are different. I would thus suggest that section 2.1 pay more attention to this issue. A table could be useful. Also Figure 1 only displays background error characteristics for the GSI system. Could the OI error variances and length scales be displayed in reference to a Gaussian model for both. Showing a one obs. impact from each analysis system would be also informative.

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Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2017-147>, 2017.

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