Response to final comments on "Reconciling differences in stratospheric ozone composites" by William T. Ball et al., Atmos. Chem. Phys. Discuss., doi:10.5194/acp-2017-142-RC2, 2017

General response

We thank Marko Laine for the time he has taken to consider the manuscript, once again and for a second time.

We reply to all comments below, with referee comments in black, and our responses in blue.

Marko Laine (Referee)
Received and published on 21 August 2017

The acronym BASIC does not stand out very well, so it might not be a good choice if the authors would like to advertise their approach and it to easily found by search engines.

While we appreciate the concern in finding the composite, we have decided to keep the acronym, which we find to be quite descriptive. We also provide a reference and URL to the composite, which should make it easier to locate.

You only mention MCMC once in line 293. You could note that the HMC algorithm used in data merge is an MCMC algorithm, too, as well as that the posterior analysis for the variance parameters in the DLM model is done by MCMC sampling (if this is the case).

We have included more specific references to the fact that HMC is an MCMC algorithm.

In the subsection 4.2 "Example results of the BASIC approach", you could more clearly state that you are dealing with synthetic data sets. The title could be e.g. "Testing BASIC with synthetic data".

We have done this, and added replaced 'tests' with 'synthetic tests' in the first paragraph.

The marginal posterior densities in Fig. A4-A7 could be smoothed a little as the wiggles are probably caused by small sample size and the choice of kernel density estimator bandwidth parameter and are not showing real features in the posteriors.

We have updated the posteriors to make them smoother, i.e. by decreasing the number of histogram bins.