

Interactive comment on “Long term validation of ESA operational retrieval (version 6.0) of MIPAS Envisat vertical profiles of methane, nitrous oxides, CFC-11 and CFC-12 using balloon borne observations and trajectory matching” by A. Engel et al.

Anonymous Referee #1

Received and published: 14 September 2015

The paper by Engel et. al. provides a coherent validation of four trace gases (CH_4 , N_2O , CFC-11 and CFC-12) from the MIPAS satellite experiment on Envisat with 7 flights of the balloon-born BONBON instrument. BONBON provides precise in-situ measurements of the above species. The validation method is clearly described and adds an important piece of information on the quality of the operational MIPAS (v6.0) for the mentioned trace gases.

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Some detailed comments:

p 7460 line 11:

Mission started in July 2002, not March 2004 (end of first phase)

line 18:

due to problems with the scanning mirror. replace with *due to problems with Interferometer Drive Unit.*

The scanning mirror is a different part of the optics, adjusting the LOS of the instrument.

p 7462 paragraph 2.4

MIPAS-E has a 3 km vertical spacing and therefore vertical resolution in the measurements (for the considered altitude range), but trajectories are calculated every 200 m or 20-50 m, respectively. So you probably have interpolated MIPAS-E to the higher resolution for calculating the trajectory starting points. Please give more details here for full insight in the method.

p 7464 paragraph 3.1

Here you discuss the sharp structure in the BONBON profile, not visible in the MIPAS-E mean profile of the matches. You state, a few of the matches indeed show this structure. Can you provide a plot with the individual matches to give an impression? Is the structure better visible for near-by matches with short trajectories? This would support your guess, that too long trajectories cannot follow such small and probably short-living structures.

Figure 6./10./14. :

Please use : *As left panel of Fig. 2.,*

Interactive comment on Atmos. Meas. Tech. Discuss., 8, 7455, 2015.

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