

## ***Interactive comment on “Properties of individual contrails: A compilation of observations and some comparisons” by Ulrich Schumann et al.***

**Ulrich Schumann et al.**

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We thank the reviewer for his detailed and helpful comments.

Here, we repeat his comments/suggestions for minor changes and explain our responses:

Comment: there are a number of complex formulas embedded in the text, those should be given their own line

Reply: Done

Comment: the paper refers to a number of grey-literature publications that I would usually ask to be removed from the list of references but might be needed here for completeness of the data base. Maybe the authors can restrict those papers to the

once that are available online or add them to the supplement? I am not entirely certain of the ACP policy in that regard.

Reply: According to ACP, informal or so-called "grey" literature may be referred to if there is no alternative from the formal literature. [http://www.atmospheric-chemistry-and-physics.net/for\\_authors/manuscript\\_preparation.html](http://www.atmospheric-chemistry-and-physics.net/for_authors/manuscript_preparation.html) Here, we include references to grey literature only for cases which we rate as important and where formal literature is not available. We checked with our librarians and learned that grey literature cannot be included in the supplement because of copyright restrictions. Instead, we made two of the older DLR reports (aufm Kampe 1942, and Schmidt 1941) available at <http://elib.dlr.de/>.

Comment: please check if all introduced abbreviations are useful, some of them are only used a few times while others are introduced later in the paper when the respective term had already been used. Also, please stick to abbreviations once they are introduced.

Reply: Done at several places.

Comment: page 3, line 8: enable instead of provide

Reply: done

Comment: page 3, line 24: omit mainly

Reply: reworded

Comment: page 11, line 20: please clarify if excluding data from the plots also means that they are not included in COLI

Reply: The data are not included in COLI. The sentence is now deleted to avoid misunderstanding.

Comment: page 13, line 21: within about 1 km of the tropopause?

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Reply: Deleted

Comment: page 14, line 22: please revise the statement: are these possible self-encounters identified from in-situ measurements or the trajectory analysis?

Reply: Text clarified; "From" replaced by "for"

Comment: page 16, line 25: west of Shannon?

Reply: text reordered to avoid misunderstanding

Comment: page 19, line 4: is it correct that you combine the measurement with random flight data about 30 years later to determine contrail age? I worry about the feasibility of this approach...

Reply: The reviewer is right; that part does not help to improve the estimate and actually is not used. Text deleted.

Comment: page 20, line 14: please provide details on the comparison or omit statement  
Reply: we now say that the data fit into the range of other results.

Comment: page 24, line 6: should the total extinction be introduced earlier in the paper? Reply: done

Comment: page 24, line 27: replace blowing with something less colloquial

Reply: Done (deleted)

Comment: page 25, line 1: is there a paper that describes how those trajectories have been determined?

Reply: The method is standard (e.g., used in CoCiP) and has been described in the text. Therefore, no further reference is needed.

Comment: page 28, line 9: CALIPSO is the satellite, CALIOP is the lidar. Reply: rephrased to: the lidar CALIOP on CALIPSO

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comment

Comment: page 37, line 2: Does this mean that all CoCiP data plotted and in the table refer to calculations performed with the ACCRI data set of 2006?

Reply: Yes. This part is rewritten to avoid misunderstanding.

Comment: Figure 3: use the same scale for Fig 3b as for Figs 1b and 2b. It looks like the red symbols in Fig 3b are the same as in Fig 3a and not those in Fig 1b. Maybe that explains the different scale.

Reply: Thank you for noting the plot error; now corrected.

Comment: Figure 6: omit “the” after Difference in the caption

Reply: Done

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Interactive comment on *Atmos. Chem. Phys. Discuss.*, doi:10.5194/acp-2016-773, 2016.

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