

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

Anonymous Referee #1

Received and published: 13 October 2016

This is an excellent contribution to the literature of contrail research. It could be viewed either as a review article, with a complete set of compiled data attached, or as a data library (as advertised) with detailed annotation and discussion included. In either case, there is also some additional analysis included, which extends and supplements the prior work quoted in the manuscript.

Given the extensive author list, who have presumably all extensively read this document: especially the parts where their data is discussed, there is not much that additional review can add. I only offer a few minor comments where I thought the wording was confusing, at least to me. For this very polished manuscript, these comments at least show that I read it fully and carefully, whether the authors choose to act on these comments or not.

C1

Again, a valuable contribution, both on what it describes but also as a resource/library for future work. The compendium of older data is especially valuable. It is interesting to read the evolution of work, and how much greater detail has become accessible as our knowledge and measurement approaches have improved. Minor comments: 1) Page 9, lines 3-4 "threshold temperature is slightly higher for finite overall propulsion efficiency". I understand fully what is being meant here, but don't all engines have finite overall propulsion efficiency? Isn't the point that the change in threshold temperature is dependent on the *change* in overall propulsion efficiency? I find this sentence confusing as written, even though I believe I understand the point intended. 2) Page 10, line 9. "an undefined aircraft" ... isn't the issue that the aircraft wasn't identified? If it had been identified, then its type and characteristics would have been known (and maybe even defined, I don't know). 3) Page 16 lines 10 - 12. "The BAe146 is propelled by four turbofan engines. ... comparable jet aircraft." Most current commercial airliners use turbofan engines as well. I don't understand the point here. Is the comparison a) of the BAe146 to those few airplanes (old Learjets, some military trainers, etc.) that use pure (no bypass) jet engines? Or is the comparison b) of older technology engines on the BAe146, which might have higher PM emissions, to more modern turbofans on today's commercial fleet? The current wording suggests that the first a) comparison is to be made, but that doesn't seem very broadly interesting. The latter b) is more interesting but the wording is incorrect for this comparison. Of these minor comments, I would hope that at least comment 3) would be clarified before publication.

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

C2