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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Laboratory and modeling studies on the effects of water and soot emissions and ambient conditions on the formation of contrail ice particles in the jet regime" *by* H.-W. Wong et al.

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This is an interesting study on the effect of different factors on contrail ice formation using both laboratory and modeling data.

I find there to be several points in need of clarification and I hope the reviewers, editor and authors with consider these in a revised version:

1. At several locations in the text a comment is made that in the absence of soot and sulfuric acid "homogeneous ice particle formation was unfavorable." If soot was not

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placed in the chamber are ANY particles in the experiment ? If not then this isn't purely "homogeneous ice formation" as there would first need to be some type of particle nucleation and growth step. If this is the case then I don't see how these two experiments could be compared. Can you comment on this? 2. One reason I bring up point 1. is that the paper contains the statement that no aerosol is in the chamber as this "avoids the possible introduction of undesired ice nuclei that may be contained in the chamber humidification air." As a second point of concern the real atmosphere around and behind jet exhaust would contain some IN (and even more homogeneous freezing nuclei). Can the model be used to see what effect this has? Can the chamber contain an atmospherically relevant number of particles as well? 3. It would be useful to see the experiments on a diagram of temperature versus ice supersaturation which contained the liquid water saturation line and the homogeneous freezing line (as given by Koop et al., Nature, 2000) which is the manner ice nucleation experiments are normally displayed.

Thank you for considering these points.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 26791, 2011.

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Interactive Comment