

# ***Interactive comment on “Atmospheric transport of persistent semi-volatile organic chemicals to the Arctic and cold condensation at the mid-troposphere – Part 1: 2-D modeling in mean atmosphere” by J. Ma***

**Anonymous Referee #1**

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This paper presents a thorough and transparent modelling approach to examine the tropospheric fate and ‘cold condensation’ of persistent organic pollutants in air held aloft. Factors that influence chemical behavior at higher altitudes are explored with regards to their long range transport and deposition at high latitudes e.g. the Arctic. This paper is detailed and generally well presented and suitable for ACPD.

Comments: The difficulty with modelling chemical behavior above the atmospheric boundary layer is the lack of measurements with which to compare with model results. However, the author should be aware of an important measurement campaign which

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took place on the remote Mount Teide on Tenerife (~28oN) with an air sampler located at ~2300 masl(see Van Drooge et al. (2002) ES&T 36(6): 1155). Concentrations of HCH isomers, PCBs and HCB are reported and would serve as a very useful dataset to compare to the model results in this study. The author should consider including a comparison of the modelled data (for this latitude/altitude) with this measured data

Equations listed after eqn.7 are not numbered.

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Interactive comment on Atmos. Chem. Phys. Discuss., 10, 453, 2010.

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