Atmos. Chem. Phys. Discuss., 10, C2598–C2599, 2010
www.atmos-chem-phys-discuss.net/10/C2598/2010/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "The validity of the kinetic collection equation revisited – Part 2: Simulations for the hydrodynamic kernel" *by* L. Alfonso et al.

Anonymous Referee #1

Received and published: 12 May 2010

This work is an extension of a previous work on the validity of the kinetic collection equation by the same authors to a more realistic hydrodynamic kernel (ACP, 8, 969-982, 2008). I recommend publication of this paper after some revision considering the following points:

1. This work is essentially on the collision and coalescence process, but ignores the breakup process. It is well known that breakup occurs when sufficiently big drops collide with each other. To justify neglect of the breakup process, please provide the runaway drop sizes, and see if they are generally smaller or bigger than, for example, the typical collision breakup drop size.

2. Although the hydrodynamic kernel is more realistic than those considered in their previous paper, it is still not "realistic". For example, this kernel does not account

for turbulence effects on the collection process. Thus, the claim of the hydrodynamic kernel being realistic needs to be tuned down. In fact, further extension to even more realistic turbulent kernels would be interesting as a research topic.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 6219, 2010.