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Interactive comment on "Kinetic model framework for aerosol and cloud surface chemistry and gas-particle interactions: Part 1 – general equations, parameters, and terminology" *by* U. Pöschl et al.

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I would like to thank Dr. Remorov for commenting our discussion paper and pointing out aspects relevant for the investigation and description of interactions between gas molecules and liquid droplets, including the special cases considered in sections 3.5.1 and 4.3.2, which are fully consistent with Hanson (1997) and other studies based on the traditional resistor model of gas uptake.

As outlined in the manuscript, my co-authors and I fully share Dr. Remorov's interest in bridging the gap between the simplified kinetic formalisms and mechanistic models usually applied in atmospheric research and more detailed approaches of surface science. We are confident that the presented model framework will indeed support efficient exchange and consistent application of parameters such as the referenced activation energies for elementary steps of mass transport.

In order to avoid potential misperceptions, however, I would like to add a clarifying statement on point 1 of Dr. Remorov's interactive comment. This point seems to suggest that the presented model framework would be limited to the special case of one species X interacting with one other species Y following a Langmuir-Hinshelwood reaction mechanism on a liquid surface. In fact this is only one of the special cases included in our manuscript and illustrated in the companion paper (Ammann and Pöschl, 2005).

In contrast to the model formalisms presented in earlier studies of atmospheric aerosol and cloud surface chemistry and gas-particle interactions (see discussion paper references), the rate equations, parameters and terminology of our model framework can be directly applied to describe systems with an unlimited number of chemical species and competing physico-chemical processes at the surface of solid or liquid particles under transient or steady-state conditions (including gas-surface, surface layer, and surface-bulk transport and reactions).

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