

Interactive comment on “Technical note: The heterogeneous Zeldovich factor” by H. Vehkamäki et al.

H. Vehkamäki et al.

Received and published: 13 December 2006

Dear Reviewers of the manuscript acpd-2006-0231,

we thank the referees for their the reviews. In line with the referees, we also believe that the publication of the accurate form of the heterogeneous Zeldovich factor is desirable and important. Especially in studies of heterogeneous nucleation on nanometer size pre-existing particles, the planar pre-existing surface approximation widely used before is not recommended. With the publication of this technical note the use of completely unnecessary approximations can be avoided in the future. As referee #2 points out, the difference in the numerical results is not dramatic in our Martian example case. It should be noted that the correction changes the dependence of nucleation rate (or nucleation probability) on the size of the seed particles. In model development, where the classical theory is compared, for example, to a fully kinetic model (based on the

same assumptions as the classical theory), the inaccuracy caused by the approximate Zeldovich factor can produce a puzzling discrepancy. We have made corrections to figures 2-5 to improve the readability of the plots.

With best regards,

on behalf of all the authors,

Anni Määttänen

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 9069, 2006.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper