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Atmos. Chem. Phys., 7, 309-313, 2007

www.atmos-chem-phys.net/7/309/2007/

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Technical Note: The heterogeneous Zeldovich factor

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Abstract. In this technical note we present the exact form of the Zeldovich factor for heterogeneous nucleation on spherical pre-existing particles. We study the error caused by planar pre-existing surface approximations, which have been used in our earlier heterogeneous nucleation model and elsewhere in the literature. We also test the significance of widely used approximations for cluster surface area and circumference. We conclude that the approximations do not affect the predicted onset saturation. Especially for small pre-existing particles the nucleation rates calculated with the exact and approximative models differ significantly.

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