

Interactive comment on “The role of atmospheric ions in aerosol nucleation – a review” by M. B. Enghoff and H. Svensmark

M. B. Enghoff and H. Svensmark

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Thank you for the critique of our paper. Please find our answers below.

Comment: “Similar type of reviews have been published recently e.g. by Curtius and and in atmopserhic point of view a special issue by Finnish-Estonian group was publishehd in 2007. I think that authors should justify, why this review have been made and why it should be publishehd.”

Response: Our intention with this paper is to provide an up to date overview of a rapidly developing field, so people who need an overview of the topic can find out what the main issues are, with regards to both observations, theory and experiments. The paper by Curtius et al (the Spa. Sci. Rev. 125, 2006 one?) gives an excellent overview of the work done on sulphuric acid-water clusters, while the special issue of Bor. Env.

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Res. 12 (3) describes the field of air ion research. Both are referenced in our paper for people who require more information on those topics. It is our opinion that a review of the entire field of ion-induced nucleation is usefull and that is what we have attempted to provide.

Comment: “1) In equation 1 the Zeldovich factor is missing, and should be included”

Response: We assume that it is in our equation 2, describing the general expression for the nucleation rate, that you want the Z-factor included? We will add that the pre-exponential factor C can include the Zeldovich correction factor.

Comment: “2) In equation 3, the notation is somewhat unclear. indexes a and b should be better described in physical point of view.”

Response: This will be done.

Comment: “3) It would be important to mention and also explain the activation of clustes, which is a proper mechanis of new particle production (see Kulmala, Lehtinen, Laaksonen, ACP, 2006)”

Response: The activation theory is mentioned on p. 7484, l. 20-24. This section could be expanded to include further discussion.

Comment: “4) On sign preference, authors should also explain the recent measurments by Winkler et al. (2008, Science)”

Response: This excellent new paper will definitely be included in our final version.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 7477, 2008.

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