

Interactive comment on “Single particle analysis of ice crystal residuals observed in orographic wave clouds over Scandinavia during INTACC experiment” by A. C. Targino et al.

A. C. Targino et al.

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Reply to Reviewers' comments on

Single particle analysis of ice crystal residuals observed in orographic wave clouds over Scandinavia during INTACC experiment

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We are grateful for the many useful comments sent by both reviewers. We have attempted to take into account most of the suggestions. The paper has profited much from these comments and was improved as a result.

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Reviewer 1

Page 8027, line 27: We've replaced "organic material inhibits freezing" for "organic materials may be poor ice nuclei".

Page 8058, lines 1-3 and elsewhere in the text: We agree with the reviewer and have replaced "freezing" by "ice nucleation" and "ice formation".

Page 8058, lines 3-4: We agree with the reviewer and have added the suggested references, namely, Georgii and Kleinjung, 1967 and Grosch and Georgii, 1976.

Page 8058, line 19: We have replaced "freezing" by "ice nucleation" and "ice formation".

Page 8062, last paragraph: we have rephrased this paragraph. WE have used the peak counts of the different elements to calculate the ratios among Cr, Fe and Ni.

Page 8070, line 7: We have included the reference by Levin et al. (1996).

Page 8071, line 3: We have replaced Levin et al. (2001) by Levin et al. (1996).

Page 8071, line 8: This paragraph has been rephrased and the references have been altered accordingly.

Page 8076, line 17: word "with" added after "but".

Page 8076, line 25: We agree with the reviewer that we cannot state with confidence that the nucleation was by freezing. We have rephrased this and other statements were "nucleation by freezing" has been mentioned.

Reviewer 2

We agree with the reviewer and some sections of the manuscript have been shortened. The number of groups has been reduced by combining groups with similar characteristics:

Groups 7 and 8 have been combined, since the particles in this group contain features of aged sea salt particles (mostly, Na and Cl with S). Groups 8, 9, 10 and 11 have

been combined and named mixed particles. This new group comprises those particles containing minerals like Al, Ni, Si, and Ti, with some S. Figure 2 and Table 2 have been modified accordingly.

The description of air mass and specific particle types in Section 3.5 (particle classes and association to air mass history) has also been shortened. The narrative of the quality control procedure in the summary section has been omitted as it was already described previously.

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 8055, 2005.

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