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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Chemical characteristics of ice residual nuclei in anvil cirrusclouds: evidence for homogeneous and heterogeneous ice formation" *by* C. H. Twohy and M. R. Poellot

Anonymous Referee #2

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More information on the chemical composition of ice nucleating particles is needed, which makes this contribution a welcomed addition to the literature. The manuscript is well written and to the point. I have only minor points and suggestions.

The information about the size range considered appearing at the top of page 3729 should also make it to the abstract.

From what crystal size is the FSSP-100 integral based?

The difference between the CVI and FSSP-100 in Figure 1 indicates that residuals

larger than 0.1 micrometers represent perhaps 10 to 20 % of the total population. This should be emphasized.

It would be interesting to compare the fractions of soluble and non-soluble particles presented in this study with the fractions of non-volatile particles presented by Seifert et al. (2004). Seifert et al. also showed that the fraction of non-volatile particles (remaining after heating to 250C) was enriched by 15-30 percent units in crystals compared to the ambient. A similar trend is seen from the small particle stage in fig 2 if organic+sulfate+salts are grouped as volatile. Although not chemically specific the Seifert et al. CVI results are based on a much larger dataset and linking the thermal properties with the chemical information would be very interesting.

Seifert et al., ACP, Vol. 4, pp 1343-1353, 23-8-2004

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 3723, 2005.