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Interactive comment on "CCN activation and cloud processing in simplified sectional aerosolmodels with low size resolution" *by* H. Korhonen et al.

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This paper describes a straightforward evaluation of the droplet number impact of several different treatments of aerosol size distributions within sections of a sectional representation of an aerosol size distribution. These treatments include monodisperse, uniform, linear, and piece-wise linear distributions within each section. Not surprisingly, the authors find that for most conditions the more complex treatments yield more realistic estimates of the number activated, but that for some conditions (e.g., highly polluted) none of the treatments work well. The former is consistent with earlier work by Zhang et al. (2002), and the latter is consistent with earlier work by Nenes et al. (2001). Thus, this study offers little new insight into the modeling of the activation process. Yet, by focusing on this one aspect of the problem, it does highlight the im-

portance of the selected subsectional representation of the size distribution. This issue will be important as long as coarse sectional representations of the size distribution are employed.

The implications of this study could be expanded if it were to provide a comparison with the performance using a multi-modal representation of the size distribution. I therefore recommend including simulations using single and multi-modal representations of the aerosol.

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 4871, 2005.