

Interactive comment on “LACIS-measurements and parameterization of sea-salt particle hygroscopic growth and activation” by D. Niedermeier et al.

D. Niedermeier et al.

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We thank referee1 for his/her comments. In the following our responses are given.

1. "General: These particles are generated artificially. It would be helpful to find some literature that compares the properties of natural sea salt aerosol particles with those generated by such an atomizer. The morphology, of course, is particularly important. While aerodynamic measurements were made to infer something about the shapes (page 3), these are indirect. It would be relatively simple to do electron microscopy measurements on the particles to see the morphology directly. This would also address the first point above - the difference (if any) between the natural particles and those generated by the atomizer. The importance of this point is underlined by the fact that

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the paper proposes to produce parameters to be used in a model that will be applied to real sea salt aerosols in the atmosphere."

Since the seawater samples are used up, no electron microscopy measurements can be performed. Additionally, no publications, comparing naturally and artificially produced sea-salt particles were found. It should be noted that according to the author's opinion, the admittedly indirect aerodynamic measurements are sufficient to gain the information needed in the framework of the manuscript.

2. "In Section 5.1 and figure 2, reference is made to a calibration with ammonium sulfate. Not enough information is given about this calibration. What was done? If what was done in this case is explained in (Wex et al 2006), a reference should be inserted here. In any case, a brief explanation should be given as well. This is especially important in view of the different deliquescence RHs of NaCl and ammonium sulfate."

The procedure of the calibration is now described in the new version of the manuscript. The below sentences were added in Sect. 5.1: 'The used RH-range was calibrated with ammonium sulfate particles. The hygroscopic growth of $(\text{NH}_4)_2\text{SO}_4$ particles ($D_{\text{me}} = 192 \text{ nm}$) was determined for several dew point temperatures, i.e., relative humidities. Köhler theory, according to Eq. (1) with surface tension of water, was applied to obtain the RH in LACIS from the grown particle diameters. Hence, each adjusted dew point is related to a defined value of RH. The sea salt and NaCl investigations were performed at these RHs (dew points).'

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