

Interactive comment on “Antarctic new particle formation from continental biogenic precursors” by E.-M. Kyrö et al.

Anonymous Referee #1

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This is a thorough, well-written paper describing the formation of new particles in the boundary layer over Antarctica. The ion and particle number measurements are of high quality and reveal episodes of new particle formation. The authors use O₃ to rule out mixing from the free troposphere, trajectories to show the air flow was over biologically active ponds and not from the open ocean or local contamination, and calculations to suggest that these particles are not sulfate. The paper is appropriate for ACP and should be published with minor revisions.

1. section 2.3. The “banana, apple, bump” need more explanation. Is this jargon necessary?
2. Section 2.4. define BSTFA and TMCS.

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3. Section 3.2.1 line 4. ...origin of particles...

4. Table 4. Define AHvap

5. Figure 17. The authors go to great length to exclude sulfuric acid nucleation as the source of these particles. However, figure 17 gives DMS top billing as the source of new particles. I suggest taking DMS out of this figure (DMS is an organic compound so by just saying organics it is included in the figure). The point here is that meltwater ponds that form during the summer in Antarctica are enriched in organic compounds as a result of blooms of blue-green algae *Nostoc commune*. The flux of these organics from the ponds to the atmosphere leads to the formation of new particles that are observed to grow by condensational growth to particles sufficiently large to serve as CCN.

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 32741, 2012.

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