

## ***Interactive comment on “The global impact of bacterial processes on carbon mass” by Barbara Ervens and Pierre Amato***

### **Anonymous Referee #3**

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This is a very interesting and important study that identifies and tackles a major gap in the aerosol cloud interactions, that is already lacking primary biological particles to a large extent, and comes up with some rough estimates of the secondary biological particles. I find the paper suitable to be published in ACP, given that some issues raised below are answered.

- 1) How about sea-ice? Is it considered together with land-ice or not considered at all?
- 2) Similarly, urban sources? Why are not they represented as they can be a large source of bacteria due to human existence?
- 3) Is it possible to provide with a formula that calculates  $F_{cloud}$  based on ecosystem, corresponding cloud fraction from MODIS and the conversion factor in order to be able

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to reproduce the values in Table 2? Table 2 can be updated to include the cloud fraction over each ecosystem.

4) Table 1 caption in section 2.4.2 should be corrected to Table 2.

5) Is it possible to distinguish the different forest types or regions? It would be interesting to see these numbers above the amazons and boreal forests for example. Therefore, it would be interesting to show that global spatial distribution of this SBA source.

6) Line 236: 1% of the secondary aerosols.

7) Line 343: Where does the  $F_c=0.5$  value come from, any reference or argument?

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Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2019-619>, 2019.

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