

Interactive comment on “Microbiology and atmospheric processes: an upcoming era of research on bio-meteorology” by C. E. Morris et al.

Anonymous Referee #1

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Comments on

Microbiology and atmospheric processes: An upcoming era of research on bio-meteorology

by C. E. Morris, D. C. Sands, M. Bardin, R. Jaenicke, B. Vogel, C. Leyronas, P. A. Ariya, and R. Psenner

This contribution assembles information about research on aerosol particles on the borderline of the science topics biology and meteorology. The manuscript is both a review and a call encouraging to look to the scientific frontiers of this highly interdisciplinary field. This call is necessary without any doubt.

The literature compilation is helpful, even if one might find his own favorite missing.

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Problems are arising at two other aspects. The 'frictions' the manuscript causes in reading is a lack in consistent terminology. One would wish at the beginning clear definitions for the aerosol particles to talk about, preferably in a table or a separate paragraph. In the abstract it is micro-organisms and in the introduction additionally biological particles at large and biological aerosols. In chapter 2, after 6 pages, comes a list with micro-organisms, bacteria, fungi, spores, viruses, and virus-like particles and one page later algae. Another page later come air flora and microflora, and not heard before, pollen. Some pages later the list contains bioaerosols, single spores, pollen, bacteria and viruses, aggregates and products. Such a introductory section could also contain which type of particles the authors wish not to include, for instance insects or parts of them, diatoms, etc . The oscillating use of designations is irritating. Additionally, the spelling could be streamlined. One time it is bio-aerosol, another time bioaerosol (my spell-checker is crying, likewise with microflora).

The information on influences of airborne biological particles on their surroundings is welcomed. However, an amendment of the discussion on (possible) repercussions of aerosol particles originating from the biosphere on atmospheric processes were conceivable. Presently, properties like ability to act as cloud condensation or ice nuclei and to participate in radiative forcing appear in the introduction, abundances in chapter 2, aspects of transport within the atmosphere in chapter 3, source mechanisms and strengths in the chapter headed 'Consolidating microbiology ..'. Some restructuring may be helpful.

Details (page number/line number):

192/12 and 15: One.. another.. are there more ?

193/29: What are some of the ... , what are the others ?

194/16: ... production of atmospheric oxidants. Oxidants or oxidized products ?

194/19: suggestion: as cloud condensation and ice nuclei.

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196/8: were a reference to the definitions possible, especially, as they seem to deviate from the ones used in this manuscript ?

196/12: is there a contradiction between the 25% and the statement on the amounts on the previous page ?

198/13: is it correct to have algae and other microbes joined ?

199/6: is Lighthart and Shaffer (1997) missing in the reference list ?

201/7: Drying of leaf surfaces due to biological processes... was senescence meant ?

202/7: by raising questions ... shouldn't they be spelled out ? just as their repercussions ? One would wish to find here the center of the manuscript.

204/3 and 13: microbial flux is understandable, but what is microbial meteorology ?

210/9: the name is Annegarn

212: is there a restriction to cells only in the table data ?

212: where are Jaenicke et al., 2000 and White et al., 1999 appearing in the table ?

Finally a remark on the title. The original title of the manuscript was matching better to the contents of the manuscript (Microbiology and atmospheric processes: Research challenges concerning the impact of airborne micro-organisms on the atmosphere and climate.). One may consider that bio-meteorology already has a wider meaning, see for instance <http://biometeorology.org> .

Interactive comment on Biogeosciences Discuss., 5, 191, 2008.

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