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Biogeosciences Discussions

Interactive comment on "Coupling of fog and marine microbial content in the near-shore coastal environment" *by* M. E. Dueker et al.

Anonymous Referee #3

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This paper describes community composition of microbial fallout under foggy and clear conditions in a coastal environment, comparing it with an ocean surface community. The authors tested the hypothesis that the primary source of viable microbial aerosols falling out on a shore area is an adjacent ocean surfaces and fog enhances microbial viability and their long transport through the air. The results obtained in this study support their hypothesis and are carefully well discussed. However, I still have a few concerns about an experimental biases caused by culture-based methodology.

The first concern is that the sequencing effort largely differs among 3 types of samples (151 fog, 13 clear, 37 ocean). Small libraries of the 'clear' and the 'ocean' may miss some OTUs, which can change some results (e.g. no of shared OTUs, similarity indices, Venn diagram) and possibly conclusions.

The second concern is the potential bias caused by the use of specific media for measurement. If the media are more suitable for culturing marine bacteria than terrestrial ones, all libraries can be dominated by marine isolates and thus the source of them looks an adjacent ocean surfaces. What is NaCl concentration of the LB used in this study?

The third concern is about colony PCR. I was wondering how much the success of colony PCR of the 3 libraries. Since terrestrial bacteria are harder to lyse than marine ones, failure of PCR amplification can be a potential bias in describing community composition.

Specific comments P9615 line 7 What kind of polymerase is used? Information of PCR enzyme is useful for readers.

P9615 line 24 No other categories such as human and animal sources?

Technical comments P9615 line 12 Drummond et al 2010 is missed in the reference section.

P9616 line 14 Colwell 2009 is missed in the reference section.

Interactive comment on Biogeosciences Discuss., 8, 9609, 2011.