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Interactive comment on “Influence of aeolian activities on the distribution of microbial abundance in glacier ice” by Y. Chen et al.

Anonymous Referee #2

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Overall, the paper describes interesting research, which involves good science, to evaluate the microbial abundance and live proportion in ice cores. This paper suffers from several fatal flaws that prevent it from being publishable at this time, but I do believe that the data is important, and hope that the authors are willing to put in the necessary time and energy to fix these issues so that it can be published.

The main issue with the manuscript is that the hypotheses and how they were tested are not clearly articulated. The entire research project is stated as though it is intended to differentiate between aeolian deposition and post-deposition microbial processes, i.e. wind deposits microbes and they stay put and do what they can vs. wind deposits microbes and they move through the snow and icepack changing distribution and abundance throughout. However, there is no explicitly described result from the

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methods presented that would prove or disprove one or the other hypothesis. Furthermore, this is not done in the discussion, where both microbes-associated-with-dust and microbes-not-with-dust are both described as evidence of the aeolian deposition.

Further, it was not clear from the methods how the authors told the live cells from the dead. Also, it was not clear why no diversity analyses were used. Finally, the lack of clear statistics for hypothesis testing was most distressing, as this is absolutely crucial to publish these data.

In addition, there are numerous grammatical and clarity issues. I highlight just a few, but encourage the authors to be thorough in their editing.

P 14532, line 25 - "... that causes climate changes Basin. . ." Unclear what the meaning is. P 14533, line 6 - "... abundance of microbial abundance. . ." is redundant. P 14535, line 14-15 - what do you mean by decontaminated? P 14536, line 21 - looks like you may mean "The density. . ." rather than "The abundance" P 14540, line 5 - But that is a higher cell density than others presented, so how is it the lowest? P 14540, line 21 - in "... dust events dust origination. . ." which is it?

Interactive comment on Biogeosciences Discuss., 11, 14531, 2014.

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11, C8351–C8352, 2015

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