

## ***Interactive comment on “Microbial colonisation in diverse surface soil types in Surtsey and diversity analysis of its subsurface microbiota” by V. Marteinson et al.***

### **Anonymous Referee #2**

Received and published: 24 November 2014

I have read again the manuscript by Marteinson et al. after corrections/comments have been made by the authors (uploaded on 22. Sept 2014)

The study is basically reporting results from two types of studies/approaches. One is an investigation of the surface microbiology of the Surtsey island using traditional bacterial methods. The main question here is how the heterotrophic microbiota has developed as the soil develops from completely inorganic pumice/lava sands to more organic, which is primarily caused and influenced by bird colonization and nesting. Therefore I find it logical to ask the questions that the authors do, i.e. concerning heterotrophic bacteria and fecal bacteria in particular, as they will definitely be introduced there in high numbers by the bird droppings.

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The second investigation is basically unrelated to the first one, which is investigating the deep subsurface microbiology in that can be uniquely accessed through an existing drill hole. Here the approach is to use primarily DNA sequence analysis, since biomass is extremely small and any cultivation from such environments is always very difficult, and at best only available for few types of organisms, which one does not know beforehand if may be present at all. The results they obtain here in this part are also very informative and the types they mainly find here, i.e. methanogens and sulfate reducing bacteria, seems logical. Therefore I find these two different approaches for surface v.s. subsurface samples to be sensible and logical.

The results from both types of studies are quite informative and important contributions due to the unique, and difficult to access environment. Both studies have relevance and can be important references for other studies on various extreme, and/or newly formed or reappearing environments.

Therefore I can highly recommend the manuscript for publication in the Journal.

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Interactive comment on Biogeosciences Discuss., 11, 13775, 2014.

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