

## ***Interactive comment on “Spores of most common airborne fungi reveal no ice nucleation activity” by B. G. Pummer et al.***

**B. G. Pummer et al.**

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We plotted our calculations for some selected species in the attached figure 1. As it can be seen, *F. avenaceum* lies closely below the bacterial IN, while *C. herbarum* and *L. edodes* (the next-most active species) set on at the volcanic ash curve by Fornea (2009) and overlap with the agglomeration of mineral dust curves on top right, before they reach a plateau. *A. niger* lies well below the mineral dust curve.

We added the proper quotes in our introduction (p.2/L.25 – 31) and installed a further paragraph in our discussion to take into account these new data (p.10/L.16 – 24):

“Jayaweera and Flanagan (1982) found appreciable IN activity in *Penicillium digitatum* and *Cladosporium herbarum*. Only very recently, ice nuclei were found in other fungal

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species, namely *Isaria farinosa* and *Acremonium implicatum* (Huffman et al., 2013), as well as in some rust and smut fungi (Morris et al., 2013, Haga et al., 2013). First tests showed that they strongly differ from the bacterial and *Fusarium* ones. For example, the rust fungi show properties of polysaccharide compounds (Morris et al., 2013)."

"Although it seems that the vast majority of fungal strains and species that exist reveal no or only very poor IN activity, findings of new IN-active fungi do occur (Huffman et al., 2013, Morris et al., 2013, Haga et al., 2013). The broad spectrum of uninvestigated and unknown species – according to current estimations, there might be more than a million fungal species on the planet – harbors a vast potential for IN activity, even if only a tiny fraction of them can express ice nuclei. Therefore further investigations of fungi will be necessary in the future. Morris et al. (2013) followed the approach of focussing on species with a lifecycle in which ice formation might be advantageous for the fungus.

This approach is consistent with what is known about the IN-active bacteria, lichen and *Fusarium* species."

We expanded the sentence with "since data from atmospheric measurements are scarce." Further discussion of this section would lead into a debate about the validity of climate models, where we neither have the experience to stand our ground, nor is it the topic of this paper, which is based on laboratory studies. Therefore, we just wanted to give an overview over the existing positions without interfering too much.

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Interactive comment on Biogeosciences Discuss., 10, 10125, 2013.

**BGD**

10, C6268–C6270, 2013

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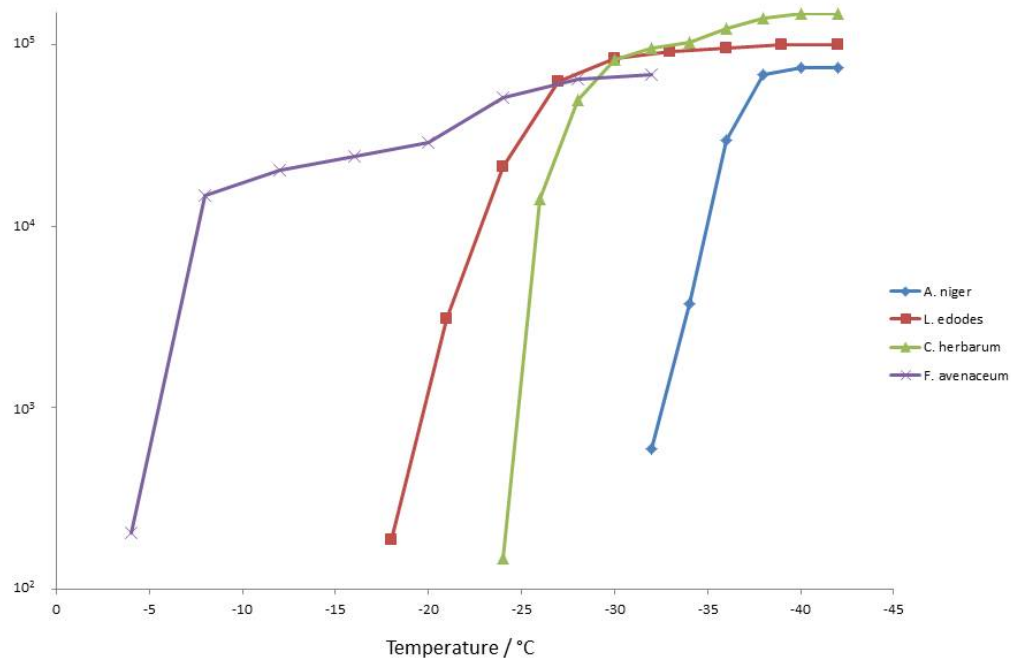


Fig. 1.

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