

Interactive  
Comment

# ***Interactive comment on “Effects of seabird nitrogen input on biomass and carbon accumulation after 50 years of primary succession on a young volcanic island, Surtsey” by N. I. W. Leblans et al.***

**Anonymous Referee #1**

Received and published: 30 May 2014

General comments The manuscript entitled “Effects of seabird nitrogen input on biomass and carbon accumulation” from Leblands et al. is an important contribution to the knowledge of ecosystem development in the recently created volcanic Island Surtsey. Most of the literature is adequately referred to postulate the hypothesis however there are two important topics that need to be discussed. Specific comments In the discussion it is stated that biological nitrogen fixation is to be discarded as an important source of nitrogen to the Surtsey terrestrial ecosystems, however it is mentioned in the web page of Surtsey Research Society ([http://www.surtsey.is/pp\\_ens/biola\\_3.htm](http://www.surtsey.is/pp_ens/biola_3.htm))

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



that in the island N fixing bacteria can live in association with pioneers species. In fact the moss *Racomitrium* and the lichen *Sterocaulon* mentioned in the web page are the most probable candidates to have epiphyte and symbiotic N-fixing associations with diazotrophic bacteria respectively (Nakatsubo & Otani 1991 Proc. NIPR Sym.Biol. Polar; Pérez et al 2014, New Zealand Journal of Ecology; Crittenden 1975. New Phytologist 74:41-49). In the same web page they mention the presence of diazotrophic bacteria such as *Nostoc* and *Anabaena* as pioneer species in recent lava. In fact, most of the aboveground biomass (Fig. 4) and the main N stock (fig. 1) outside the colony reported are mosses. The reference Magnússon et al. 2014 is not given in the reference lists. It is recommended to delete the sentence that no biological N fixation is expected in the Surtsey ecosystems, at least in the non-ornitogenic soils Is there any information available about phosphorus concentration and stocks in soils, either ornitogenic or non-ornitogenic, or both? Would the authors expect any differences among both types of communities? Can you confirm the general statement that P availability is high at early stages of primary successions, either ornitogenic or not ornitogenic? (Walker and Syers, Crews et al 1995). It is suggested to briefly discuss expectations about P availability if there is no data available.

---

Interactive comment on Biogeosciences Discuss., 11, 6269, 2014.

**BGD**

11, C2012–C2013, 2014

---

Interactive  
Comment

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

