

# ***Interactive comment on “A prognostic pollen emissions model for climate models (PECM1.0)”*** **by Matthew C. Wozniak and Allison Steiner**

## **Anonymous Referee #2**

Received and published: 8 August 2017

The authors have submitted a well-written manuscript describing a prognostic pollen emission model for climate modes. The approach relies on empirical phenological models that have been used extensively in regional scale applications. The novelty of this work arises from using (and comparing) both a taxa and a PFT-specific land cover database to drive pollen emissions in a climate model (RegCM4). The results suggest that the taxa-based model captures in a better way tree-based pollen counts at the expense of losing some of the “climate-flexibility” that the PFT-based model provides.

In addition to the comments and corrections noted by Referee #1, the following specific and general points would enhance the quality of the manuscript:

Line 28: Wind-borne pollen diameters can range more than 70  $\mu\text{m}$ .

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Line 221: BELD is not based only on land surveys. The authors should revise and include version information.

Section 4.3 needs enhancements to better explain how the production factor was obtained for each modeled taxon due to non-uniform methodology. Furthermore, Table 2 does not exist.

Section 5. The regional climate model setup needs to be described in more detail (i.e. number of cells, resolution, vertical structure, etc.).

A taxa-based database comparison providing spatial coverage values for each region would be a useful addition.

References need to be carefully checked - i.e. Zhang, R. et al. (2014)

Production factors and the units listed in Table 1 must be properly referenced.

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Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2017-105>, 2017.

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