

Interactive comment on “Estimates of common ragweed pollen emission and dispersion over Europe using RegCM-pollen model” by L. Liu et al.

Anonymous Referee #2

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This paper presents a model aimed at estimating the emission and density of ragweed pollen over Europe. Estimating these parameters is important as ragweed pollen is highly allergenic. Furthermore, ragweed is an invasive species and its pollen can be transported by the wind over large distances, which underlines the need for accurate modelling of the flowering phenology and pollen concentration in the atmosphere. And overall, the paper focuses on these points.

However, my first concern is that I cannot evaluate the quality of the model, as I am not a specialist of modeling. Although the different parts of the model setup and the parameters used seem correct to me, I cannot make valuable comments on this part of the ms.

My second concern deals with the accuracy of the model in predicting the pollen sea-
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son and the model's performance over short time scales. The model reproduces the pollen season quite well in the main regions where ragweed is abundant, but performs much less satisfactorily in regions where ragweed is less common. This might be a problem if these regions where the species is not common represent areas that are under colonization by ragweed: indeed, it is in these regions that the prediction should be the most accurate. About the model's performance over short time scales, I think this is also a concern because daily or weekly variations of pollen contents in the atmosphere are the ones that have the biggest impact on public health. The authors clearly underline these weaknesses in the discussion and conclusions, but they should provide more clues and avenues of research to overcome these problems in future models.

Despite these concerns, I think the paper gives valuable simulations of the ragweed pollen contents in the atmosphere. The manuscript I have reviewed already mentions that the paper has been accepted for publication and published on November 3, 2015, so I do not think my review should include recommendations concerning the publishing (by the way, I did not fully understand why I had to review a paper that seems to be already published?)

More specific comments:

A few spelling and grammatical errors in the ms. but overall the English is very satisfactory and the paper reads easily and is clearly written.

Interactive comment on Biogeosciences Discuss., 12, 17595, 2015.