

Interactive comment on “Implementation and evaluation of a new methane model within a dynamic global vegetation model: LPJ-WHyMe v1.3” by R. Wania et al.

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We would like to thank referee #2 for the positive and constructive review. We will include the suggested minor changes in the revised version of this manuscript and we provide comments on the main issues below.

Main issues: 1) The structure is confusing with multiple methods and discussion sections. The manuscript would benefit from a simpler structure with one methods section, one results, followed by discussion and conclusions.

We will clarify the structure of the manuscript.

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2) Sensitivity tests I and II are very confusing. Sensitivity II is in fact more like a fitting exercise; perhaps this should be named as such, i.e. Parameter Sensitivity, Parameter fitting and site evaluation, and circumpolar application. Sensitivity test II is used to derive the best guess of parameters - I see no statistics to base this selection. Also where does $f_{\text{exu}}=0.175$ come from? It's not in the combination of tests.

We like the suggestion of changing the name of the second sensitivity test to parameter fitting and will include it in the manuscript. We will also do our best to make the description of the sensitivity tests clearer. We will add statistical information to the parameter fitting section. $f_{\text{exu}}=0.175$ was chosen as being between parameter level two (0.15) and three (0.2) because our results didn't point clearly to one or the other. Since we did not include those results in the manuscripts, the reader could not know. We will add this information to the manuscript as part of presenting the statistical basis for our parameter selections more explicitly.

3) In general the manuscript is long and would benefit from shortening; removing repetition and using more concise sentences in places.

We will identify sections that can be shortened and will make sentences more concise.

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