bg-2017-302

Modeling rhizosphere carbon and nitrogen cycling in *Eucalyptus* plantation soil

The subject authors addresses here is very important and keeping the broadness of the work and big dataset of the work in mind, I would like to suggest that the manuscript can be published but authors should consider a major revision of their manuscript before they re-submit it in this Journal and elsewhere.

Major concerns

-The manuscript is cursorily written. As for example, in the introduction, Page 2, Lines 7,8, 13, 14, 16 etc.

-The grammar followed in composing the manuscript is not same throughout the manuscript.

- The manuscript doesn't read well.

- The abbreviations which have already been defined earlier are not followed throughout the manuscript.

- The English must be improved before resubmission or the manuscript can be checked or edited by two native English speakers with similar scientific backgrounds/of the same field.

-The sources of the data used for modelling are not written in recognized format.

-For better understanding of the results and to compare with other works, the authors can divide the results and discussion into two separate sections.

Conclusions

Page 19 line 4: the word should be "Conclusions".

-The authors could not come up with the message of the work. Even, the sentences are not clear in expressing any meaning. All the sentences should be rewritten.

SUPPLEMENTARY MATERIAL

- Most of the equations used are not presented with the definitions of the components.

Minor concerns:

Page 1, Line 19, 'and' should be used after the penultimate process.

2.1 Parameter estimation

Page 8, Lines 7-8 are not clear.

2.1.2 C and N availability and microbial demand

Page 4, Lines 27-28: Sentence meaning should be clearer.

Page 6, Line 3: What does it mean by Eucalypt plantation root? Does it mean Eucalyptus plantation roots?

2.2 The evaluation of the rhizospheric model

Page 8, Line 18: It is not clear what the authors wanted to say.

Figure 4: for giving it self-explained shape, NSE, ME, MAE and RSR should be elaborated again, in the figure title as legend.

Page 11, Figure 6: There are some less-visible numbers. What does it means?

Page 11, Line 12. Full stop is missing.

Page 11, Line 22: Three or there?

Page 11, Line 30, 32, 35: Check. Sentences are not clear in meaning.

Page 13, Line 41; Sentence meaning is not clear.

Page 14, 6: the equivalent or 'equivalent'.

2.1 Sensitivity analysis of the ForPRAN model: The subtitle numbering is not correct.

Lines 36-37 are not correct in meaning. (Meaning not clear).

Table 1. can be revised as "Values of the input variables used in the model to estimate fine root length, rhizosphere volume and C rhizodeposition

Figure 2. Flow chart of processes represented in the ForPRAN model: Presentation must be improved.

Figure 8 and 9: Source: Based on not based in

- In, table 1, soil clay contente should be "Clay content in soil".

Page 20, Lines 4-5, Is it the source of the data used for the modelling?

Page 21, Line 2, Line 31, the meaning is not clear.

Eq 19, 20, 27, 28 are not well-presented.

Page 27, Lines 24-25, the sentences are not clear in meaning.