SOIL
Discussions

EGU

Open Access

Interactive comment on "Soil fauna: key to new carbon models" by J. Filser et al.

Anonymous Referee #2

Received and published: 10 May 2016

The given manuscript (ms) is devoted to reviewing current scientific data on the relationships between soil fauna and soil organic matter (SOM) dynamics in the light of improving existing SOM models. By including into the models direct and indirect effects of soil fauna (for example such as feeding on plant residues and bioturbation of soil), it is thought by the authors to fundamentally enhance predictive outcomes of SOM models.

The ms has clear objectives and represents a good contribution to scientific progress in the interdisciplinary area of soil biologists/ecologists and modellers. It is considered a substantial number of relevant references, making the review very educational for students of any level and scientists.

At the current level of understanding soil biology processes, we do not need to justify the relevance of incorporating of soil fauna (or soil microorganisms, soil vertebrates etc.) into SOM models. Now the matter is to my knowledge how to implement these

data in theoretical models. Why these incorporations were not done before: due to lack of communication between modellers and biologists? Or it was not done due to lack of technical support (software) in modelling? Or biologists were not "convincing" enough for theoretical modellers?

Another matter in the ms is the introduction of the COST (KEYSOM) project? Is it like an advertisement of the project? What is the aim of this introduction? KEYSOM is a very interesting project, no doubts about that, but what is it for in the ms? Is it possible to justify the presence of such information in the review paper, please?

I like how the authors are trying to classify the effects of soil fauna on soil processes and properties into so called "key insights". It is nice to see that data are collected not only for earthworms effects but other soil invertebrates too, including Collembola, potworms, nematodes, ants, termites. Though, when looking at the source references in the Table 1 one gets an impression that there was not much done to quantitatively test effects of soil fauna in soil. It is the case, isn't it?

Figures and tables of the ms are important parts of the story. They inform reader in a graphical way very well and are self-explainable. Concerning figures, I would like to add that after printing they both look fuzzy (not sharp). In Fig.1 in permafrost "star" the abbreviation PF is not seen at all. In general this Fig has more a look that I would describe as a "whatever" look. Soil microorganism symbol looks like something else. Is it possible for you to make a picture where clearly, for example, with arrows or spatial restructuring, will be seen which "insight" affects which animal-mediated process? In Fig.2 unit of MAP is mm per year. What is this dot after mm?

Line 182. Needs to change references positions, year 2012 goes first. Line 254. Two times is used the word "on", please change the sentence. Line 290. Sentence "...diversity and abundance of soil animals IS reduced as....", should not be ARE here instead? Line 355. Needs to remove symbol % after 70. It should be only after 77%.

Overall the ms is written concisely, the language is fluent, precise, and grammatically

correct.

C3