

Interactive comment on “The moisture response of soil heterotrophic respiration: interaction with soil properties” by F. E. Moyano et al.

Anonymous Referee #2

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This manuscript describes an interesting model analysis on the relationship of soil heterotrophic respiration (soil organic carbon decomposition) to soil moisture. As only second to temperature, soil moisture is important in describing either soil respiration or predicting the dynamics of soil C stocks in the context of global climate change. This study pointed out that respiration-moisture relationship is dependent on soil properties across a large range of soil types, which may reduce the uncertainties in modeling the response of soil C.

The manuscript was well written, and well organized though there are some points requiring clarification or further discussion. For an empirical model, more variables mean more precise or less uncertainty in simulation. The number of variable used in a model is a compromise between simulation efficiency and model simplicity. It will be

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valuable to include in the manuscript how much improvement in model simulation has been made by adding soil properties as variables.

Specific comments:

Page 11583 line 18. Change "4" as a subscript in " β_4 ".

Page 11584 | 15-16. Please explain how to rescale as not everyone understands R code.

Page 11593 table 1. It is better to indicate which site used as organic soil, which as mineral soil.

Page 11595, table 3, RMSD (model root mean square deviation) was used as the fitness of models. It will be useful to have the total root mean square variance in here to show the goodness of models.

Page 11596, Fig.1. Could it be possible to have a comparison between models of this study and other models (e.g. Roth-C, etc.)?

Page 11598, Fig. 3. In each line of panels, it is better to indicate the simulation being done at what level of other soil properties (for example, the first line of panels was simulated at what levels of soil organic C and bulk density).

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