

Interactive comment on “Soil CO₂ efflux from two mountain forests in the Eastern Himalayas Bhutan: components and controls” by Norbu Wangdi et al.

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General response to reviewer comments:

We highly appreciate the effort and the constructive suggestions of our reviewers and the section editor!

All three reports point at the need for a better description of the Rh model, for better distinguishing between model results and measured data in the text, for a better definition and consistent use of terms with regard to temperature sensitivity, and for a better explanation/discussion of the trenching results. We fully agree with our referees in most points and we will adapt the manuscript accordingly. We will add the model-

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R-script and the measured data as supplements. Regarding sensitivity, we will stick to the definitions by Davidson and Janssens 2006 and Sierra et al. 2015, respectively. We agree that field Rs is not driven by temperature alone and therefore, we will avoid the term “Q10” for the relationship between field Rs and field soil temperature. We will remove all 2014 Rs data, as suggested (pressure problem during measurements) and improve Fig. 4 (trenching), which indeed is difficult to understand. We will remove Fig 3. This information can be brought in the text. We will add more discussion with regard to issues associated with trenching. Reviewers 2 and 3 suggested removing all information about the added (2015) trenching plots which produced unusable data. We would prefer keeping the information in the paper. It could be helpful for readers to be pointed to potential shortcomings/pitfalls of this method. For us, the persistently high CO₂ fluxes after trenching came somewhat unexpected. Therefore, we would prefer sharing these observations.

We will revise the manuscript within the coming weeks and send a detailed response letter to each reviewer.

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