



Interactive comment on "Does the temperature sensitivity of decomposition vary with soil organic matter quality?" by M. Reichstein et al.

Anonymous Referee #2

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This is a well written paper. The abstract is clear, and the Introduction sets the scene well, including acknowledgement of literature at both the point and global scale. The beginning of Section 2 provides a clear summary of the results of Knorr, and also the issue here - namely questioning whether stable soil organic matter is highly sensitive to temperature rises.

One point the authors might like to make is that there is enormous scatter in Figure 1, even when fitting to "all points". This will always cast doubt over conclusions reached for parameter values (note significance levels are given but not discussed). Hence it should not be surprising that there is significant interplay (or "collinearity") between parameters, as later shown with the Monte-Carlo analysis looking for links between parameters Q10 and B. In other words, a good fitting model should have less problems with collinearity because the individual signals/components related to those parameters.

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ters will be better defined. I think the overall message is that the simple models are not up to explaining the data.

Figure 1 could be made slightly clearer if it explicitly states in the caption the points included. So, for instance, the top caption could say something like "N=25 ie "diamonds"+"crosses"+"squares".

The end of Section 2 makes a very good case for further measurements, where the current lack of process understanding might be. Also the conclusions are concise and useful in the debate.

Overall, I recommend accepting this paper. It is very nice to see somebody apply regression analysis and think about the results - not just take the "best fit " parameters and suggest this then yields a comprehensive and accurate model. Well done!

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Interactive comment on Biogeosciences Discussions, 2, 737, 2005.