

Interactive
Comment

Interactive comment on “Measurement depth effects on the apparent temperature sensitivity of soil respiration in field studies” by A. Graf et al.

Anonymous Referee #1

Received and published: 9 June 2008

General comments: Temperature sensitivity of soil organic matter decomposition is of large interest in the debate on interactions between the carbon cycle and climate change. One of the main difficulties when interpreting field observations is to choose a soil depth for which to relate changes in temperature to changes in CO₂ flux at the soil-atmosphere interface. Using a numerical model validated by field measurements, the authors have systematically studied the effect of the depth at which temperature is measured, on the apparent temperature sensitivity (Q₁₀). They evaluated all major relevant parameters, such as the thickness of the respiring soil layer, duration of the observation period, thermal diffusivity, effective CO₂ diffusivity, and daily and annual temperature amplitudes. Clearly written, the paper places ideas, concepts and results in the context of similar, albeit less comprehensive, studies. Conclusions are

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well supported by the results. They provide a useful guide for future field studies and in re-evaluating older data. Such a systematic study has long been overdue. Well done!

Minor issue: Please use a larger font size in Figure 4.

Interactive comment on Biogeosciences Discuss., 5, 1867, 2008.

BGD

5, S773–S774, 2008

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