

Interactive comment on “Abiotic CO₂ sources confound interpretation of temperature responses of in situ respiration in geothermally warmed forest soils of Iceland” by Marja Maljanen et al.

Anonymous Referee #1

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This manuscript describes the contribution of abiotic (geothermal) CO₂ source to the total CO₂ emission from geothermally warmed forest soils of Iceland. The topic is relevant to BGD, the MS is well written and the techniques employed are appropriate. Some moments should be taken into account before final publication of MS: 1. I advise using in the title ‘biotic CO₂ efflux’ instead of ‘respiration’ 2. There are 3 weak methodological points in the work. - The first is a very small repetition of CO₂ emission measurements, which is insufficient for obtaining truthful results due to the very high spatial and high variability of soil CO₂ fluxes; - The second is the difference in vegetation and its density in the study plots where the CO₂ fluxes were measured. Since the authors did not remove the vegetation, this is a significant moment that

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could affect the CO fluxes from soils. The comparison between plots, in this case, cannot be considered legitimate. The convincing explanations on these issues are required; - The third is the absence of any statistical analyses of soil and CO₂-flux data. 3. Due to the region studied is very exotic it would be nice to include more information on the relevance of this study for other regions. It may be analyses of the temperature sensitivity (e.g. Q₁₀ values) of biotic components of total CO₂ emission using the data for plots FN+0, FN+1, FN+2, FN+6, and FN+10 plots. 4. Some specific comments: - in Fig. 1, the lines for designating total and geo- CO₂-fluxes are very similar. Use, please, more contrasting symbols for lines; - Table 1 in Supplement: Include, please, mean and SE in this table instead of the individual measurements; - Fig 1 (Supplements): Change please the scale (1/concentration), using the 10⁻³ for scaling. The Figure will be more readable.

Please also note the supplement to this comment:

<https://www.biogeosciences-discuss.net/bg-2019-213/bg-2019-213-RC1-supplement.pdf>

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