

Interactive comment on “Continuous measurement of soil CO₂ efflux in a larch forest by automated chamber and concentration gradient techniques” by N. Liang et al.

Anonymous Referee #2

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P1345: Based on the title of this revised manuscript, one would assume that the main emphasis is on a continuous measurement of soil CO₂ efflux by employing two independent yet complementary methods. Then, the prerequisite would be the inter-comparison of the two methods to eliminate (or quantify) the potential biases prior to any assessment or integration.

P1346: Regrettably, the abstract (and the rest of the manuscript) is still out of focus and provides no clear results on either the comparison or the integration for the annual efflux. Heterotrophic contribution, rain events, and Q₁₀ are in fact distracting the focus of the presentation, which are not necessary to highlight here. In this sense, the objec-

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tive (2) mentioned on P1348 should be given the last priority. The authors should give more thoughts and discussions on the objective (3) as the second priority to (1). Consequently, the logic of the order of presentation does not make sense in the abstract, which is also pointed out by the other reviewer. What is the reason and scientific basis for dividing the data by warm and cold seasons in the comparison?

P1347-1348: In the introduction, there should be more literature reviews on the history, weakness and strength of the gradient technique used in this study.

P1352-1354: The authors should provide more discussion and justification of the representativeness of the gradient measurement and the validity of the assumptions made in this study.

P1355-1359: First, the results on the inter-comparison between the two methods should be provided before presenting any other results. Then, the authors should determine if they could in fact combine these two methods to come up with one data set. Accordingly, the order of presentation should be (using the current subsections): comparison of the two methods, sections 3.5, 3.7, 3.1, 3.2, 3.3, 3.4, and 3.6.

In this process, the authors may consider examining the effect of adding the missing wintertime data to their analysis on the responses of soil carbon efflux to temperature and moisture.

P1363: The conclusions section is not really addressing the two most important objectives of the study as introduced earlier.

In summary, the manuscript requires a major revision and the authors should pay serious attention on the above comments.

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