

Interactive
Comment

***Interactive comment on “Ventilation of
subterranean CO₂ and Eddy covariance
incongruities over carbonaceous ecosystems” by
A. Were et al.***

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The paper has been assessed by two reviewers which found that minor changes will be necessary to make the paper publishable in BG. I agree with the reviewers in that the paper is written in a clear and concise fashion and makes for a nice contribution on a topic the eddy covariance CO₂ flux community has largely ignored. In contrast to the reviewers I though have two major comments to make, as detailed below. I am though confident that the authors will be able to address them. Any revised version of the paper should be line-numbered and accompanied by a point-by-point reply to the reviewer and my comments.

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Major comments: (1) I would like to see an additional statistical analysis of the data, in particular tests of whether slopes and y-intercepts of linear regressions are statistically different from unity and zero, respectively, and whether slopes and y-intercepts of linear regressions differ statistically significantly between EC1 and EC2 - currently this analysis is relatively vague. (2) I would like to see a more thorough discussion of the assumptions and limitations of the used approach; in particular regarding (i) the use of CO₂ and H₂O as tracers, (ii) differences in above-ground footprint heterogeneity between biotic and abiotic periods, and (iii) the authors might also think about what their conclusions would have been in case their analysis had revealed that both EC systems measured the same fluxes during abiotic periods, which might theoretically occur in case below-ground sources of CO₂ of varying strength compensated each other within the footprint.

Minor comments: (1) p. 10914, l. 24: or more generally "the underlying surface" (2) p. 10914, l. 26: all EC towers? (3) p. 10917, l. 23-26: aren't this 6 original 3 composite input parameters? (4) Fig. 1: if possible use a color image - the b&w version does not read very well (note that color figs are free of charge with BG!) (5) Fig. 2: use different colors and line types for EC1 and EC2 - the grey and black lines are hard to distinguish

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