

Interactive
Comment

Interactive comment on “Sensible and latent heat flux from radiometric surface temperatures at the regional scale: methodology and validation” by F. Miglietta et al.

F. Miglietta et al.

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Anonymous Referee #3

1 - This is a well written paper that compares methods to assess surface sensible and latent heat fluxes. It brings together ground measurements, airborne and satellite remote sensing observations. How to best scale observations from local to regional scale and the associated information gain (or loss) is still an open issue and the paper is thus timely and well-suited for BG. I only have a number of fairly minor comments that should be addressed: There is a fairly substantial discrepancy between the ratios of sum of sensible and latent heat flux over R_n between surface and airborne measurements. The authors mention possible reasons for this, i.e., the flux loss in the low

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and high frequency domain, and the necessary correction for flux divergence. I was wondering whether it was possible to dwell upon this in a bit more detail, which of those processes may be the dominating culprit, how sensitive is the flux correction, for instance, for the chosen value of K , etc.

Reply: Following this suggestion, this part of the discussion has been improved (see revised text)

2 - It may sound like semantics, but I do not particularly like validating models. I do not think this is the proper term to be using, particularly considering the large discrepancies between some surface and airborne/satellite-derived fluxes. Models can be evaluated.

Reply: We accept this comment, and replace the word validation with evaluation in the title.

3 - In equation (6), how is soil heat flux derived?

Reply: G was assumed, with large simplification, to be a constant fraction of the net radiation. Such values were obtained by means of the analysis of the tower sites for each ecosystem, and information is added in the revised text. This simplifying assumption is also relevant for the applicability of the method in absence of tower data (see our revised conclusions and the relevant point above)

4 - Similar to the other reviewer I got also a bit worried about the bold statement of using literature values for r_c . Before accepting this at face value I would like to see more discussion about the sensitivity of the overall results to varying values of r_c .

Reply: See our last comment on Reviewer 2 reply and revised conclusions on the applicability of the methodology.

Interactive comment on Biogeosciences Discuss., 6, 1945, 2009.

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