

***Interactive comment on* “Estimating carbon dioxide fluxes from temperate mountain grasslands using broad-band vegetation indices” by G. Wohlfahrt et al.**

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We thank reviewer #1 for his/her constructive comments. Below is our point-by-point response to these comments:

1. With regard to the two sites, is there any information that could be used to describe the c3/c4 composition of grasses at these sites? Although some grasses were listed, most grassland sites are a composite of several species. This may explain some of the differences in the derived parameters for the non-linear model.

While there are no C4 species present at the two sites, there are in fact a lot of different grass and for species present. Differences in the composition of the two sites and

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the physiology and structure of these species are likely to explain at least part of the observed differences. We will thus supply more information on the species composition of the two sites.

2. The weak correlation of Reco with the indices is not surprising given that most respiration processes are temperature dependent, although there is probably some correlation of NDVI with seasonal temperature signature. But I would be careful of reading too much into any correlation of Reco with NDVI.

We will revisit the discussion of this issue.

3. When, taking the spectral measurements (average of 5 replicates), what were typical coefficients of variation for the various reflectances?

We will supply the corresponding numbers in the revised manuscript.

4. On page 11166, the PAR photon flux conversion 4.55 J/mol should have a citation, there are plenty out there. Also there is a 5% or so uncertainty (or variation) in this conversion factor that should be mentioned. Good analyses on the uncertainty computations.

We took the value from Goudriaan and Van Laar (1994), which we will cite in the revised text. We will also mention the uncertainty of this factor - thanks for pointing this out to us.

Interactive comment on Biogeosciences Discuss., 6, 11159, 2009.

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