

Interactive comment on “Remote sensing-based estimation of gross primary production in a subalpine grassland” by M. Rossini et al.

Anonymous Referee #3

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The paper of Rossini et al. presents high temporal and spectral resolution canopy spectra with EC data. The datasets are acquired for two consecutive years on a subalpine grassland and are used to evaluate the potential of RS to estimate carbon uptake using the LUE concept of Monteith. All vegetation indices, the study explores for this purpose, can be calculated from already operating satellites (ESA-MERIS and MODIS). The main results showed that GPP can be sufficiently estimated with chlorophyll sensitive vegetation indices, as they explain most variability of seasonal GPP, and considering vegetation indices and meteorological data. GPP estimation was improved when including incident PAR and modelling green LUE with PRI.

It is a valuable and well written paper which is of high interest for the optical remote sensing community. It should be published with minor revisions in BGS.

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Minor revisions:

Page 1718, line 5: “non-photosynthetic material” means brown leaf material?

Page 1718, line 12: I assume the canopy height was high enough, so that the placement of the sensor below the canopy did not influence the structure of the canopy itself?

Page 1722, line 15: “constant LUE” which values were taken? Measured LUE_g ? daily mean values and resampled data?

Page 1728, line 24: should it be $(LUE_g)_m$ instead of LUE_g , because the whole paragraph refers to Fig. 4?

Page 1750, header of Table 6: should be GPP_m and PAR_m .

Interactive comment on Biogeosciences Discuss., 9, 1711, 2012.

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