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Biogeosciences Discussions

Interactive comment on "Modelling LAI at a regional scale with ISBA-A-gs: comparison with satellite-derived LAI over southwestern France" *by* A. Brut et al.

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Response to Reviewer 1: The authors thank the anonymous referee #1 for his/her review of the manuscript and for the fruitful comments. For an easier comprehension, general comments of the referee are also reported (1.XX).

1.01 [It would be interesting add on figure 4 the initial MODIS LAI product (which is used by a lot of peoples) to compare initial and modified LAI calculated from MODIS]

Response 1.01

Yes, we agree. The initial MODIS LAI products have to be added to Fig. 4. The upgraded Fig. 4 shows that the initial MODIS LAI product is noisier than the other satellite products with a number of spurious low values during the vegetation period. For C3 crops, the MODIS maximum LAI value is lower than the MODIS-CNRM product, and the interannual variability is more pronounced. On the other hand, the maximum LAI values are higher for the deciduous broadleaf trees, the coniferous trees, and the C3 natural herbaceous vegetation.

1.02 [I suggest to make a figure like in figure 4 (or to replace it) with a more restrictive rule for determination of the pixels considered from satellite (for instance 90% of the same patch for the pixel and also for surrounding pixels) even if there is very few pixels to see if agreement with model is not improved]

Response 1.02

Using pixels containing at least 90% of the same patch, instead of 70%, has very limited impact on the results presented in Fig. 4.

1.03 [Why for the comparison of onset dates (figure 8) only MODIS data is used and not CYCLOPES (whereas we have seen a possible bias in MODIS for the onset date) ?]

Response 1.03

CYCLOPES LAI values are far lower than the MODIS data. However, Reviewer 1 is right, leaf onset values derived from CYCLOPES can be compared with the other estimates, as this indicator does not depend significantly on the absolute values of minimum and maximum LAI. The upgraded Fig. 8 presents the leaf onset difference of the model with both MODIS-CNRM and CYCLOPES LAI products. It confirms that the leaf onset derived from CYCLOPES agrees better with the modelled leaf onset. There is a broad agreement of the spatial distribution of the MODIS-CNRM and CYCLOPES leaf onset differences. For both products, lower leaf onset differences are observed in

the Les Landes area and close to the Mediterranean coast. Also, leaf onset differences are smaller in 2003.

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