

## ***Interactive comment on “Observed and modelled ecosystem respiration and gross primary production of a grassland in southwestern France” by C. Albergel et al.***

**Anonymous Referee #2**

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The submitted manuscript deals with an important issue in Earth and climate related science and is within the focus of the journal. The authors present an interesting and pragmatic way to improve the established land surface model (ISBA) ISBA-A-gs in terms of characterizing the ecosystem respiration rate. The manuscript is well structured and the argumentation is clear. I agree with and support the comments of referee 1. In addition, the following aspects should be clarified and improved:

The presentation of the results should be more consistent in a way that all results are related to a reference (measured data). Most of the results are already related to a measured dataset (SMOSREX measurement site). Please add this reference data also

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in figure 2, figure 6 and table 5.

Both, figure 7 and 8 basically compare measured and simulated values. I would suggest that the results from figure 7 are presented as scatter diagram similar to figure 8 or vice versa. This may increase the consistency and comparability of the results.

Add error measures ( $r^2$  and RMSE) in line 23/page 444 to make the statement about the correlation between measured and simulated surface soil moisture content more objective.

The discussion should contain some statements with respect to the transferability of the approach to other test sites.

For my understanding, the surface soil moisture content is not well estimated with the ISBA-A-gs model (figure 8 and line 23, page 444). The authors did an analysis to quantify the impact of this effect on the simulation of Reco. However, a description of possible reasons should be included in the discussion to judge the problem with respect to a potential model transfer to other test sites and other environmental constellations.

The quality of the figures should be improved, especially the text size on the diagram axes.

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Interactive comment on Biogeosciences Discuss., 7, 429, 2010.

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