

Interactive comment on “Impact of climate, vegetation, soil and crop management variables on multi-year ISBA-A-gs simulations of evapotranspiration over a Mediterranean crop site” by S. Garrigues et al.

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We would like to thank referee-1 for the review of our paper. Your remarks were very useful to improve the overall quality and clarity of the paper. We carefully considered your comments and we modified the manuscript. Below, we provide answers to each of your comment.

1. “Please remove the unnecessary duplication of descriptions in the introduction, the model section, results and discussion sections.”

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We improved the structure of the paper and we removed redundancies. The changes are highlighted in the revised manuscript.

2. “A small map of the field site helps the reader to get an impression of the location.”

We added a map of the field site which includes the location of the measurements. We showed the location of the site at the regional scale.

3. “I suggest to summarize the ISBA model properties in a table.”

We included a table to summarize the main characteristics of the model

4. “The evaluation metrics with table 4 alone is too abstract for the reader. Here some scatter plots could help to see the distribution of ET values in the different simulations. It would be nice to see also other time scales, e.g. monthly and seasonal values.”

We added four scatter plots to illustrate the scattering of ET values generated by the main investigated drivers: climate: SAFRAN versus local climate. irrigation: No irrigation versus irrigation vegetation: ECOCLIMAP-II versus local vegetation soil parameter: Pedotransfer estimate of the soil parameters versus estimates of the soil parameters derived from in situ measurements. We did not include soil texture which has a low impact on ET. We computed the metrics at monthly and seasonal time-scales. We improved the presentation and the clarity of Table 4 (see response to referee-2). We removed the correlation which adds little to the analysis. We also removed RMSD which is not necessary since we provide the systematic (SD) and random (MD) component of the scattering. Results of Table 4 are organized by type of forcing: climate, soil and irrigation using bold character.

5. “The results section “Impact of soil texture” is rather short. It could be enlarged by a comparison of the results with results of other long-term simulations (e.g., Smiatek et al., 2015, DOI: 10.1127/metz/2015/0594).”

The impact of soil texture is low compared to other drivers. This is related to the structure of the pedotransfer function used in ISBA which leads to low variations in

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the root-zone reservoir. We further discussed these results including the reference provided by referee-1.

6. “Furthermore I suggest to combine the sections "Results" and "Discussion" to avoid duplication and to extend the discussion of the results in comparison with long-term simulations, e.g. Guillod et al., 2013 (<http://dx.doi.org/10.1007/s00382-012-1395-z>)”

We re-organized the result and discussion sections to avoid redundancies and improve the clarity of these sections. The new result section is divided into two parts. First, we analysed the uncertainties in the large-scale drivers. Then, we analysed the impact of the drivers on ET. We moved the interpretation from the discussion section to the result section. The discussion is now focused on the implications of our results regarding the spatial variability of the forcing variables and the application of the model at larger scale. We included a comparison with other long-term simulation studies in the discussion as suggested.

7. “Minor comments:Please check spelling in Table 1. "radiation" 2. The fonts in figures 4 and 6 are rather small compared to the other figures”

We checked and corrected spelling in Tables. We increased the fonts of Fig 4 and 6.

Interactive comment on Geosci. Model Dev. Discuss., 8, 2053, 2015.

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